

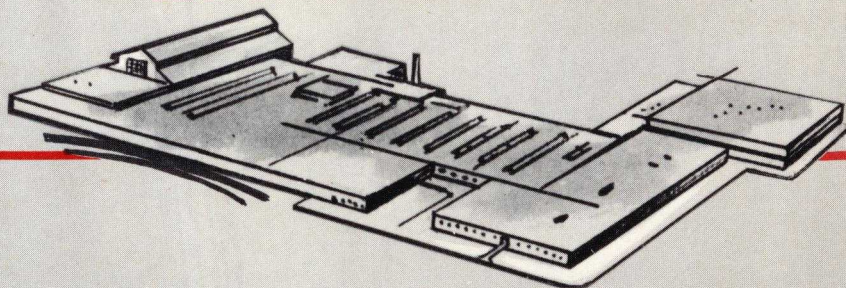
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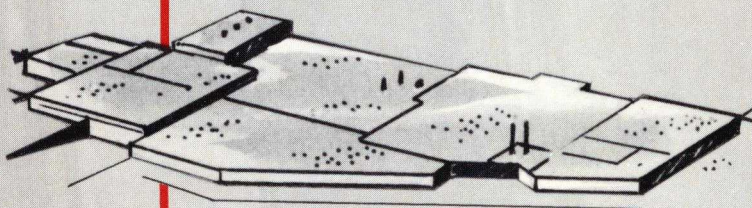


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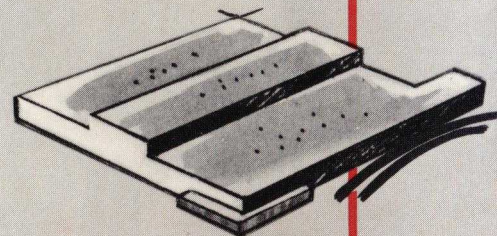
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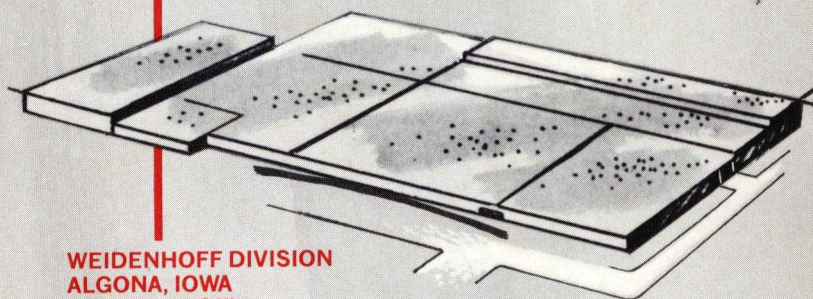
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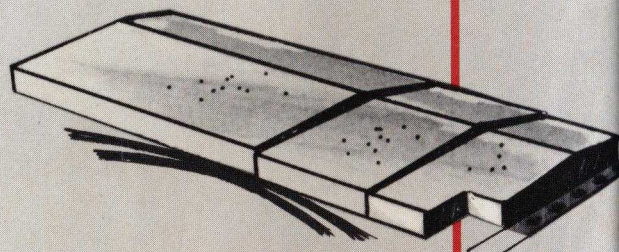
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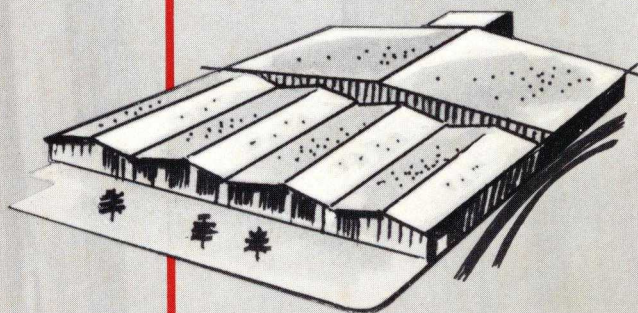
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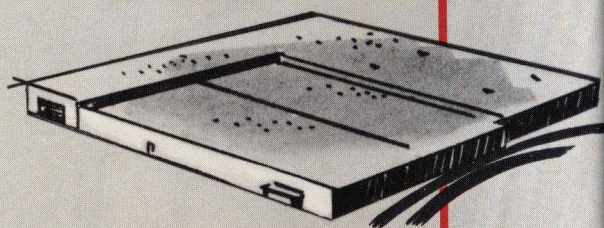
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Any Snap-on hand tool or part thereof which fails to give satisfactory service will be repaired or replaced when returned to a Snap-on representative or branch warehouse.

Any Snap-on equipment item which fails to give satisfactory service within the stated warranty period will be repaired or replaced when returned to a Snap-on representative or branch warehouse.

Snap-on shall not be liable for loss of use of the product or other incidental or consequential costs incurred by the purchaser.

A WORD ABOUT SAFETY

Personal safety and the proper use of tools and equipment are reflected in safety statements found throughout this catalog. For example:

CAUTION: The units on this page are for hand operation only.

Properly using the right tool for each job helps increase production while safeguarding tools, equipment and the user.

IMPORTANT NOTICE

We reserve the right to make changes in design or construction at any time without incurring any obligation in incorporating such changes in tools or equipment previously sold. We also reserve the right to discontinue the manufacture of any tools or equipment at such time as we consider necessary.

We cannot accept the responsibility for the results of using tools which have been abused or badly worn, such as chisels and punches mushroomed by hammer blows, or the incorrect use of tools, or tools repaired by others.

SPECIALLY-DESIGNED TOOLS

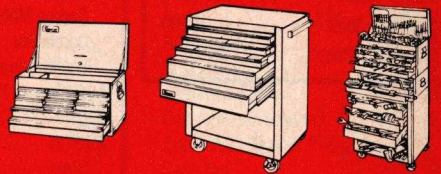


Snap-on manufactures specially-designed hand tools to solve unusual repair and maintenance problems. Often these "specials" help eliminate bottlenecks in assembly operations, speeding up work and cutting production costs.

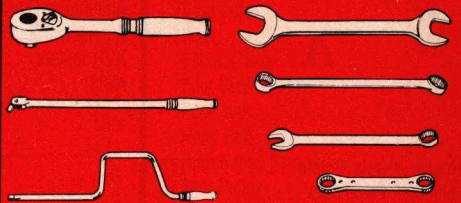
Together, you and your Snap-on tool specialist can survey existing operations, and if standard tools aren't the answer, he can refer idea sketches to Snap-on design engineers for special tools.

He'll also be happy to recommend various tool control programs to help organize the use and inventory of tools.

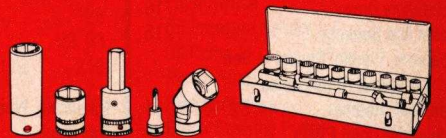
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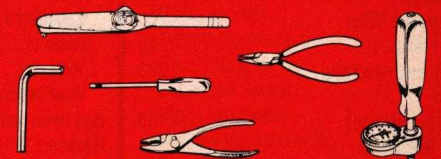
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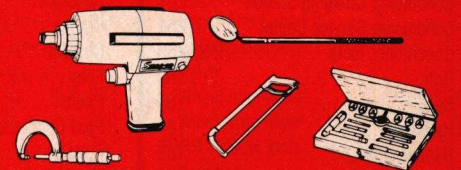
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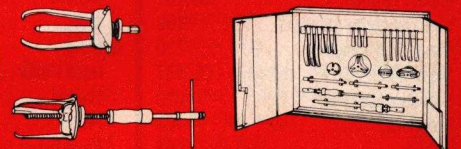
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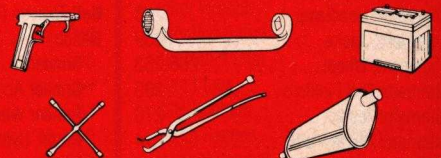
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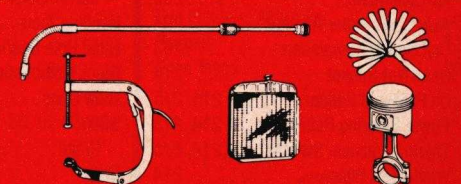
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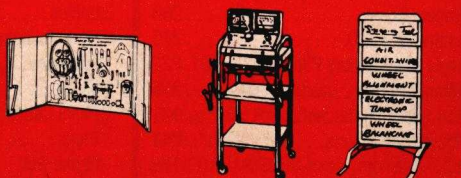
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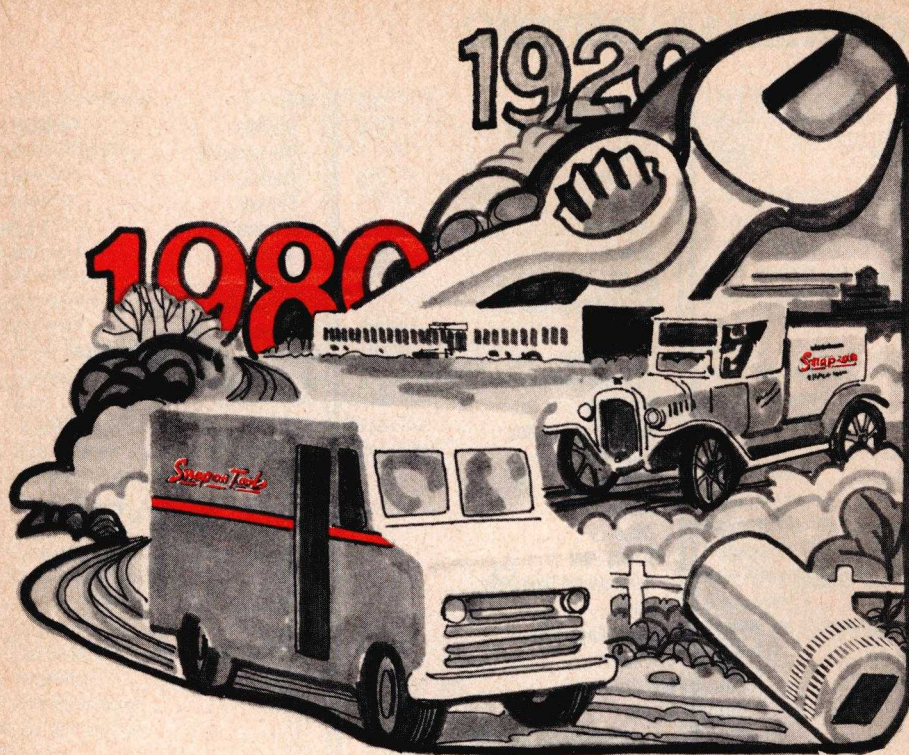
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PROVEN QUALITY for SIXTY YEARS

Quality built products, based on sixty years of experience, are what have made *Snap-on* the world's largest independent tool manufacturer and distributor of hand tools. Founded in 1920, the original *Snap-on* product line included an interchangeable socket set, consisting of ten sockets and five handles. *Snap-on* has maintained their superior quality, and coupled with dependable service they have continued to be a leader in the tool industry for sixty years.

MANUFACTURING CAPABILITIES

Now, sixty years later, *Snap-on* has seven manufacturing facilities in the United States and a product line of over 9,000 items. Each manufacturing site is geared to produce a specific product or products. Manufacturing plants are also located in Canada and Mexico.

Today, in addition to manufacturing interchangeable sockets, handles and wrenches *Snap-on* also makes pliers, screwdrivers, chisels and punches, hammers, body tools, balancing and alignment equipment, electronic diagnostic equipment, pneumatic tools, metal storage units and many more special application tools.

Snap-on also purchases items from outside suppliers for resale. These products must meet the same rigid standards as products manufactured by *Snap-on*.

DISTRIBUTION of PRODUCTS

Snap-on products are distributed to the 52 branches from one of three distribution centers in the United States. Six service centers (within the U.S.) provide fast, efficient service. All *Snap-on* Service Centers are equipped with the same testing and calibrating equipment as the factory at which it was manufactured.

Snap-on products are sold to basically two groups of tool users... the "professional mechanic" and the industrial tool user. "Professional mechanics" are served by a sales force of over 2500 independent dealers, each working out of one of the many branch sales offices in the U.S., including Honolulu and Puerto Rico. Each Dealer services his assigned territory in a fully stocked, walk-in type van. The van, which serves as a mobile store allows the Dealer to demonstrate the tools and equipment. It also allows him to inspect and in some instances repair merchandise.

THE INDUSTRIAL MARKET

To help solve the tool problems of industry *Snap-on* has a sales force of almost 200 Industrial Salesmen. In addition to supplying the standard hand tools they are trained to furnish custom tool kits, provide technical and application data, help analyze production situations, establish inventory control programs and develop special tools. Industrial Salesmen work closely with the engineering designing staff at *Snap-on*. These trained experts will help solve any tool problems that tools in the current product line won't solve. After reviewing your tool problem, the Specials Department will furnish a quote and a print of the tool. The proper material and manufacturing processes are decided upon, based on the application requirements. Many times modifying a basic tool will solve the problem.

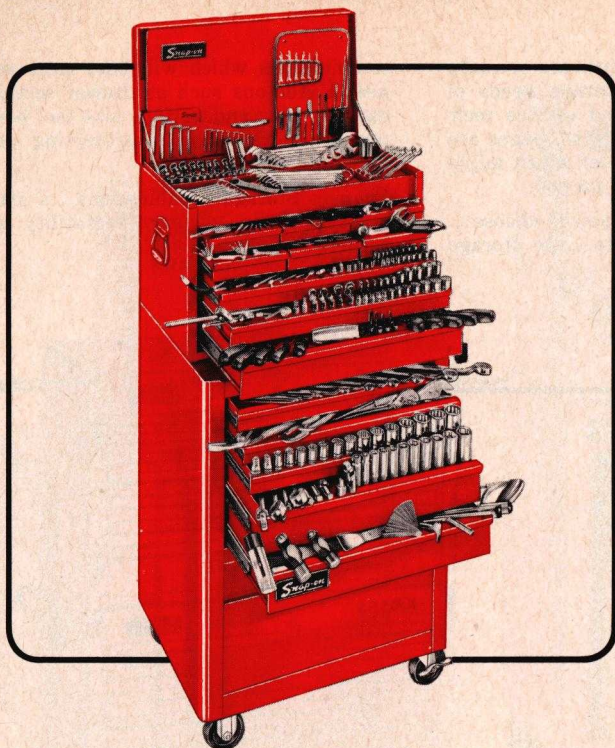
AFTER the SALE... MORE SERVICE

After the sale of a *Snap-on* product your *Snap-on* specialist continues to provide the same dependable, personalized service you've come to know and expect as a *Snap-on* customer. In addition to providing on the spot inspection of damaged or worn tools and demonstrating new tools and equipment your *Snap-on* Dealer can make repairs such as replacing screwdriver blades and hammer handles, provide air tool and tune-up equipment loaners, repair or exchange ratchets and replace bits in socket-type drivers. If a part has to be ordered he can take care of that too. Many times he will have the part when he makes his next stop and can complete the repair. If the tool or equipment requires repair at one of the six *Snap-on* Service Centers, he will send it in for you at no additional cost.

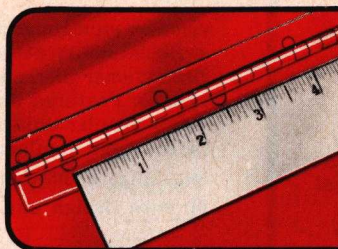
SAFETY AT SNAP-ON

Safety statements have been incorporated throughout this catalog to urge personal safety and proper tool use. *Snap-on* believes that by using the right tool and using it properly, the job will get done with less down-time, loss of wages and personal injuries.

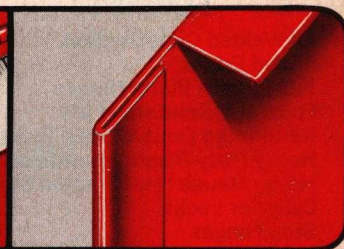
QUALITY PROTECTION... **Snap-on** STORAGE UNITS



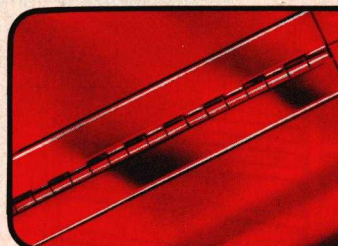
Focusing on your desires and needs, SNAP-ON offers you a variety of tool storage units. Characteristic of and complimentary to the SNAP-ON product line, these rugged units offer both an effective means of tool storage and a showcase appearance, reflecting pride in your profession. Built to last, these units are a wise investment because they hold their value. *Warning: In the set illustrated above, storage unit drawers are shown open for display purposes only. In use, tipping could occur if a multiple number of loaded drawers are extended.*



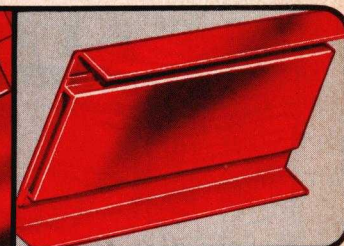
ALL WELDED CONSTRUCTION — all major SNAP-ON cabinets have 350 to 600 welds spaced 2½" to 3" apart. This provides extra strength at points of stress...extra strength for tool protection.



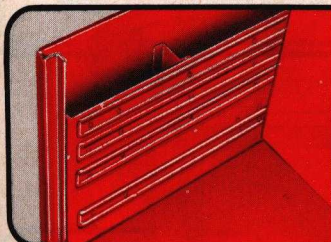
ROLLED EDGES — double thickness of the metal means extra strength and rigidity...tight, secure fitting lids. Compartments will retain their original shape under stress.



FULL LENGTH PIANO HINGES — retain door and lid shape and allow free, non-binding swing. Hinges are closely spot welded into position, reinforcing lid and back.



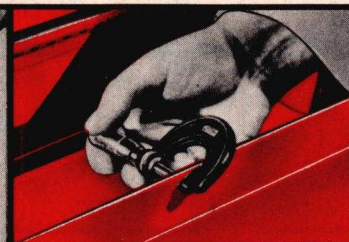
FOUR-WAY REINFORCED LID — raised steel panel on inside provides extra strength for larger storage chests. Ensures non-warping, thus allowing free movement of drawers and lids.



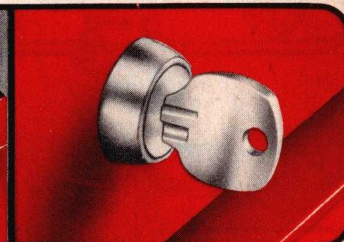
DOUBLE SIDES — SNAP-ON cabinets have reinforced double steel sides permitting easy drawer movement. Attached drawer runners add strength and rigidity to the overall cab structure.



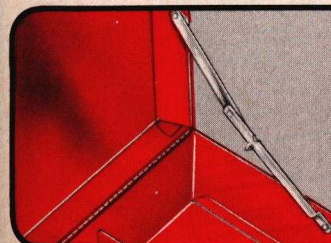
TRUNK-TYPE HANDLES — heavy duty reinforced handles are on many of the larger SNAP-ON chests. The handles allow for a secure grip for lifting the heaviest loads, with minimum hand discomfort.



EXTRA-THICK STEEL — all SNAP-ON roll cabs, chests and boxes are constructed of heavy gauge heat treated steel to provide strong, rigid construction...leading to a long useful life.



CYLINDER LOCK — featured on the larger SNAP-ON storage units, these locks assure greater theft protection. SNAP-ON combination units may be ordered keyed-alike for greater convenience.



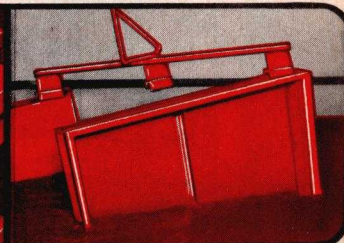
STOP HINGES — featured on larger cabinets, safely hold lid open allowing both hands to be free while selecting tools. Easily lowered by pressing stop hinge. Eliminates inefficiency.



REINFORCING DIVIDERS — allow for easy tool storage and separation. The dividers are lapped over and welded at right angles to the bottom of the drawer to prevent drawer sagging.



Newly designed **DRAWER RUNNERS AND CHANNELS** — allow smoother operation of loaded drawers. A limit stop prevents the drawers from pulling out completely.



ELECTRO-DEPOSITION — Electrically charged paint bath forces paint to migrate to all parts of the submerged chests. All parts are then baked to give the smoothest, hardest finish available.

FEATURES

- All Welded Construction
- Rolled Edges
- Full Length Piano Hinges
- Four-Way Reinforced Lid
- Reinforced Double Steel Sides
- Heavy Duty Trunk Type Handles
- Heavy Gauge Heat Treated Steel
- Cylinder Locks
- Stop Hinges
- Reinforcing Dividers
- Drawer Runners and Channels
- Electro-Deposition Paint Method

Snap-on storage combinations are specially matched to meet tool storage needs of professional mechanics and service technicians. Featured on these two pages are a few popular units...one of which might be the right "combination" for you.

This wide variety allows you to choose... or even design and create...the storage

combinations which will best meet your needs. Add-ons such as drawer sections, hang-on cabs and various size tool boxes provide versatility in protecting your growing tool inventory.

Snap-on Storage Combinations...a smart investment in variety, versatility and security.



KR2095
31,056 Cu. In.
8,586 Sq. In.
Overall Height: 57½"
Load Capacity: 2,000 lbs.



KR2105
27,844 Cu. In.
9,986 Sq. In.
Overall Height: 66"
Load Capacity: 2,200 lbs.



KR2641
21,355 Cu. In.
7,628 Sq. In.
Overall Height: 68¹³/₁₆"
Load Capacity: 1,120 lbs.



KR2632
17,261 Cu. In.
6,228 Sq. In.
Overall Height: 64"
Load Capacity: 1,020 lbs.



KRA2137
20,304 Cu. In.
5,003 Sq. In.
Overall Height: 59 $\frac{1}{8}$ "
Load Capacity: 1,020 lbs.



KRA1822
19,269 Cu. In.
6,281 Sq. In.
Overall Height: 65"
Load Capacity: 1,120 lbs.



KRA1868
15,505 Cu. In.
5,665 Sq. In.
Overall Height: 62 $\frac{1}{2}$ "
Load Capacity: 1,020 lbs.



KRA2102
25,988 Cu. In.
7,034 Sq. In.
Overall Height: 63 $\frac{7}{8}$ "
Load Capacity: 1,120 lbs.



KRA2141
21,052 Cu. In.
6,298 Sq. In.
Overall Height: 59 $\frac{1}{8}$ "
Load Capacity: 1,020 lbs.



KRA1438
13,765 Cu. In.
4,169 Sq. In.
Overall Height: 54 $\frac{3}{8}$ "
Load Capacity: 1,020 lbs.

TOOL CHESTS



KR550

KR550
11,340 Cu. In.
4,518 Sq. In.

Largest of the *SNAP-ON* Tool Chests with 6 narrow short drawers divided by an extra deep narrow drawer, 3 wide medium drawers and 1 wide deep drawer...eleven spacious drawers for plenty of storage capacity. Partitions separate tools.

Overall Length	Overall Width	Overall Height	Net Weight, Lbs.	Shipping Weight, Lbs.
35 $\frac{1}{2}$ "	21 $\frac{17}{32}$ "	21 $\frac{7}{8}$ "	145	163

Top Compartment and Drawers	Length	Width	Depth
Compartment	32 $\frac{21}{64}$ "	20 $\frac{3}{8}$ "	4 $\frac{1}{4}$ "
6	11 $\frac{3}{64}$ "	19 $\frac{1}{2}$ "	1 $\frac{9}{16}$ "
1	6 $\frac{3}{64}$ "	19 $\frac{1}{2}$ "	5"
3	31 $\frac{5}{32}$ "	19 $\frac{1}{2}$ "	2 $\frac{1}{16}$ "
1	31 $\frac{5}{32}$ "	19 $\frac{1}{2}$ "	4 $\frac{9}{32}$ "

Companion Roll Cab: KR555

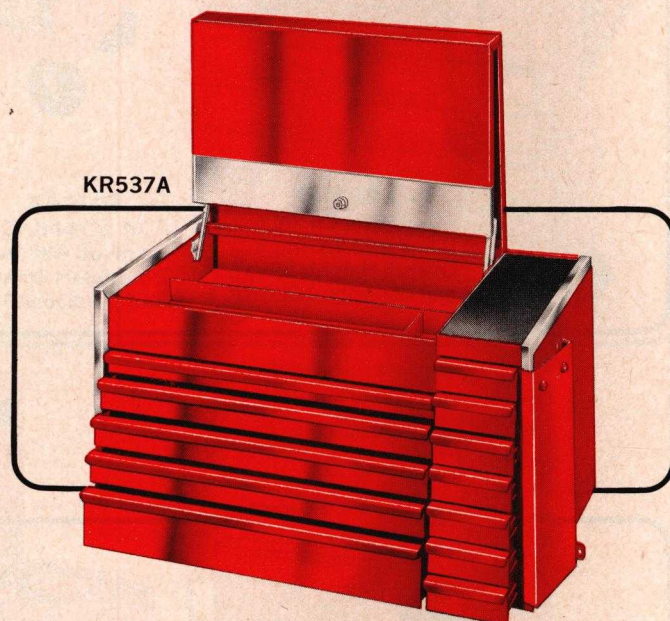
KR537A
7,169 Cu. In.
2,926 Sq. In.

Five full size drawers and a "stack" of seven narrow drawers provide this chest with ample storage versatility. Partitions separate tools. The KTA7 Tote Tray (page 21, not included with chest) fits top compartment.

Overall Length	Overall Width	Overall Height	Net Weight, Lbs.	Shipping Weight, Lbs.
32 $\frac{1}{2}$ "	18"	17 $\frac{13}{32}$ "	128	145

Top Compartment and Drawers	Length	Width	Depth
Compartment	25"	16 $\frac{27}{32}$ "	3 $\frac{9}{16}$ "
1	24 $\frac{3}{32}$ "	16 $\frac{1}{16}$ "	1 $\frac{7}{16}$ "
3	24 $\frac{3}{32}$ "	16 $\frac{1}{16}$ "	2 $\frac{1}{16}$ "
1	24 $\frac{3}{32}$ "	16 $\frac{1}{16}$ "	3 $\frac{15}{16}$ "
7	4 $\frac{3}{4}$ "	16 $\frac{1}{16}$ "	2 $\frac{1}{16}$ "

Companion Roll Cab: KR557B



KR537A

KR533B
5,975 Cu. In.
2,407 Sq. In.

Five drawers and an open compartment provide plenty of storage space. Partitions separate tools. KTA7 Tote Tray (page 21, not included with chest) fits top compartment.

Overall Length	Overall Width	Overall Height	Net Weight, Lbs.	Shipping Weight, Lbs.
26 $\frac{1}{2}$ "	18"	17 $\frac{13}{32}$ "	95	110

Top Compartment and Drawers	Length	Width	Depth
Compartment	25"	16 $\frac{27}{32}$ "	3 $\frac{9}{16}$ "
1	24 $\frac{3}{32}$ "	16 $\frac{1}{16}$ "	1 $\frac{7}{16}$ "
3	24 $\frac{3}{32}$ "	16 $\frac{1}{16}$ "	2 $\frac{1}{16}$ "
1	24 $\frac{3}{32}$ "	16 $\frac{1}{16}$ "	3 $\frac{15}{16}$ "

Companion Roll Cab: KR558C



KR533B

ROLL CABS

Storage

KR555
16,503 Cu. In.
5,468 Sq. In.
Load Cap. 1,160 lbs.

Nine full length drawers in three sizes assure a maximum of storage capability. One cylinder lock secures all drawers. Includes 5" heavy duty casters (2 swivel, 2 fixed), plus the KR402A Side Handle.

KR555

Overall Length	Overall Width	Overall Height (w/Casters)	Net Weight Lbs.	Shipping Weight Lbs.
35 1/2"	21 17/32"	43 7/8"	323	345

Drawers	Length	Width	Depth
5	31 5/32"	19 1/2"	1 3/4"
3	31 5/32"	19 1/2"	4"
1	31 5/32"	19 1/2"	6 13/32"

Suggested Top Chest: KR550



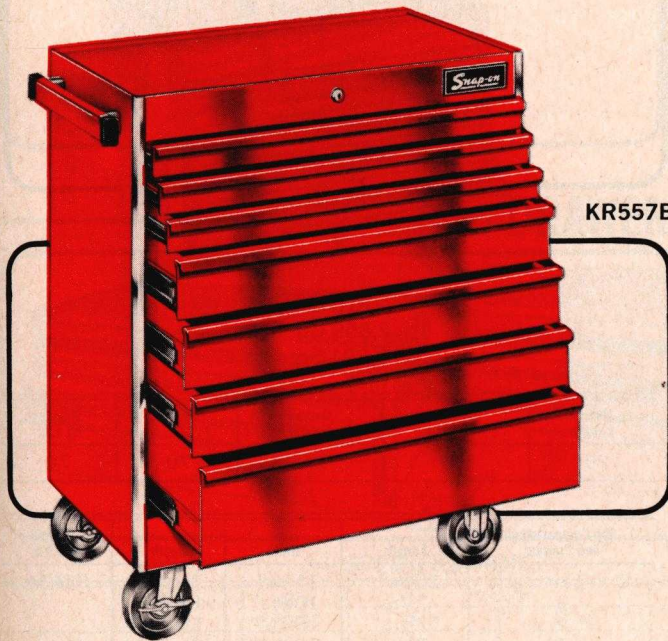
KR557B
10,600 Cu. In.
3,317 Sq. In.
Load Cap. 1,160 lbs.

Has 7 drawers partitioned by one or two dividers. Includes four 5" heavy-duty casters (2 swivel, 2 fixed) and KR402A Handle. Bottom portion is strengthened for increased loading capacity. One lock secures all 7 drawers.

Overall Length	Overall Width	Overall Height (w/Casters)	Net Weight Lbs.	Shipping Weight Lbs.
32 1/2"	18"	37 25/32"	171	190

Drawers	Length	Width	Depth
3	29 3/8"	16 1/8"	2 1/16"
3	29 5/16"	16 1/8"	3 15/16"
1	29 5/16"	16 1/8"	6 15/32"

Suggested Top Chest: KR537A



KR558C
9,540 Cu. In.
2,779 Sq. In.
Load Cap. 1,100 lbs.

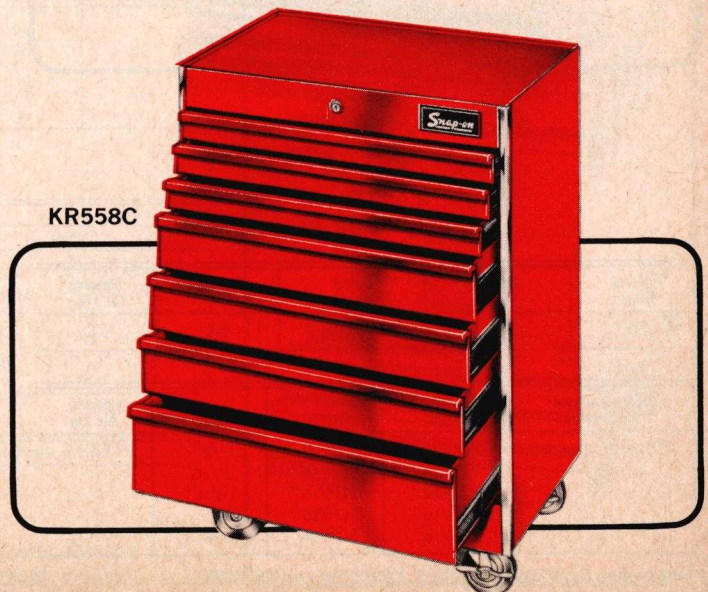
Seven full-length drawers with different depths and dividers. Cylinder lock secures all drawers. Includes 4" heavy duty casters (2 swivel, 2 fixed), plus KR402A Handle.

Overall Length	Overall Width	Overall Height (w/Casters)	Net Weight Lbs.	Shipping Weight Lbs.
26 1/2"	18"	36 23/32"	140	190

Drawers	Length	Width	Depth
3	24 1/8"	16 1/8"	2 1/16"
3	24 1/16"	16 1/8"	3 15/16"
1	24 1/16"	16 1/8"	6 15/32"

Suggested Top Chest: KR533B

KR558C





KRA61D

KRA61D
5,462 Cu. In.
2,259 Sq. In.

Overall Length	Overall Width	Overall Height	Net Wt. Lbs.	Shipping Wt. Lbs.
31"	15"	17"	107	115

Top Compartment and Drawers	Length	Width	Depth	Optional Tote Tray
Compartment	30 ⁷ / ₈ "	14 ⁵ / ₁₆ "	4"	KTA3A
6	8 ⁹ / ₁₆ "	13 ¹ / ₂ "	12 ³ / ₃₂ "	
2	27 ⁹ / ₁₆ "	13 ¹ / ₂ "	12 ³ / ₃₂ "	
1	27 ⁹ / ₁₆ "	13 ¹ / ₂ "	32 ⁷ / ₃₂ "	

Companion Roll Cabs: KRA307F and KRA300F.

KRA59C
4,185 Cu. In.
1,793 Sq. In.

Overall Length	Overall Width	Overall Height	Net Wt. Lbs.	Shipping Wt. Lbs.
26"	14 ³ / ₄ "	17 ³ / ₈ "	91	100

Top Compartment and Drawers	Length	Width	Depth	Optional Tote Tray
Compartment	25 ⁵ / ₈ "	14"	3 ¹ / ₈ "	KTA3A
6	62 ⁷ / ₃₂ "	13 ¹ / ₈ "	1 ³ / ₄ "	
2	22 ¹ / ₂ "	13 ¹ / ₈ "	2"	
1	22 ⁷ / ₁₆ "	13 ¹ / ₈ "	3 ¹ / ₂ "	

Companion Roll Cabs: KRA352E, KRA379A and KRA380.



KRA59C

KRA58D
2,859 Cu. In.
1,291 Sq. In.

Overall Length	Overall Width	Overall Height	Net Wt. Lbs.	Shipping Wt. Lbs.
26"	12"	14"	70	76

Top Compartment and Drawers	Length	Width	Depth	Optional Tote Tray
Compartment	25 ⁵ / ₈ "	11 ³ / ₄ "	3 ¹ / ₂ "	KTA3A
3	7 ¹ / ₁₆ "	10 ⁹ / ₁₆ "	1 ³ / ₁₆ "	
2	7 ¹ / ₁₆ "	10 ⁹ / ₁₆ "	1 ¹ / ₁₆ "	
2	7 ¹ / ₁₆ "	10 ⁹ / ₁₆ "	2"	
1	23 ³ / ₁₆ "	10 ⁹ / ₁₆ "	2"	
1	23 ³ / ₁₆ "	10 ⁹ / ₁₆ "	27 ⁸ / ₈ "	

Companion Roll Cabs: KRA352E, KRA379A and KRA380.



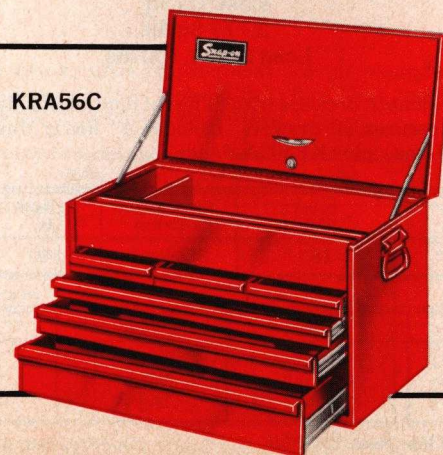
KRA58D

KRA56C
2,492 Cu. In.
1,236 Sq. In.

Overall Length	Overall Width	Overall Height	Net Wt. Lbs.	Shipping Wt. Lbs.
26"	12"	14"	64	70

Top Compartment and Drawers	Length	Width	Depth	Optional Tote Tray
Compartment	25 ⁵ / ₈ "	11 ³ / ₄ "	3 ¹ / ₂ "	KTA3A
3	7 ¹ / ₁₆ "	10 ⁹ / ₁₆ "	1 ³ / ₁₆ "	
1	23 ³ / ₁₆ "	10 ⁹ / ₁₆ "	1 ³ / ₁₆ "	
1	23 ³ / ₁₆ "	10 ⁹ / ₁₆ "	2"	
1	23 ³ / ₁₆ "	10 ⁹ / ₁₆ "	3 ³ / ₈ "	

Companion Roll Cabs: KRA352E, KRA379A and KRA380.



KRA56C

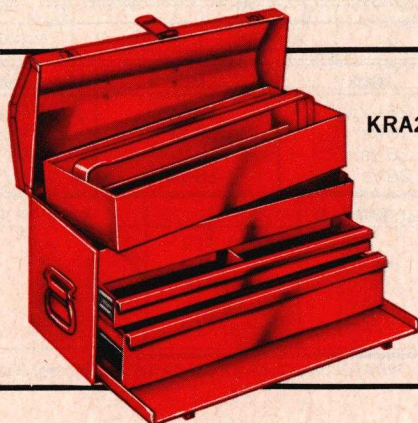
TOOL CHESTS

Storage

KRA53B
2,045 Cu. In.
850 Sq. In.

Overall Length	Overall Width	Overall Height	Net Wt. Lbs.	Shipping Wt. Lbs.
24 1/8"	10 1/2"	11 3/4"	39	45

Top Compartment and Drawers	Length	Width	Depth	Optional Tote Tray
Compartment	23 7/8"	9 5/8"	1 3/4"	KTA2
1	21 15/16"	9 3/16"	1 9/16"	
1	21 15/16"	9 3/16"	2 1/16"	
1	21 15/16"	9 3/16"	3 1/2"	



KRA21C

KRA53B



KRA21C
1,460 Cu. In.
836 Sq. In.

Overall Length	Overall Width	Overall Height	Net Wt. Lbs.	Shipping Wt. Lbs.
21"	8 3/4"	11 1/4"	28	32

Top Compartment and Drawers	Length	Width	Depth	Includes Tote Tray
Compartment	20 3/4"	8 9/16"	2 1/16"	KTA3A
1	19 3/4"	7 3/4"	1 1/2"	
1	19 3/4"	7 3/4"	3"	

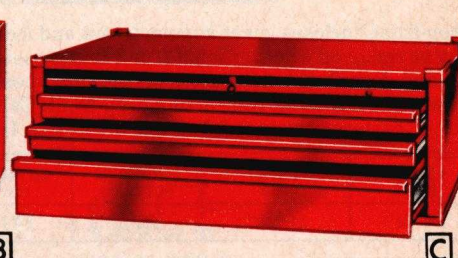
DRAWER SECTIONS



A



B



C

SPECIFICATIONS

	No. of Drawers	Capacity		Weight	
		Cu. In.	Sq. In.	Net	Shipping
A KR541A	3	2,645	1,160	63	70
B KR547	3	3,650	1,425	76	85
C KRA461A	3	2,484	1,117	69	75
D KRA428B	2	2,105	796	34	40
E KRA429B	3	2,010	1,194	39	45

Note: KRA461A and KR541A also feature a drop front.

DIMENSIONS

	Overall			Drawers	
				Shallow	Deep
A KR541A	26 1/2"	x 18"	x 10 1/16"	(2) 24 3/32" x 16 1/16" x 17 1/16"	(1) 24 3/32" x 16 1/16" x 3 15/16"
B KR547	32 1/2"	x 18"	x 12 1/32"	(2) 29 11/32" x 16 3/16" x 21 1/16"	(1) 29 11/32" x 16 3/16" x 3 9/16"
C KRA461A	31 13/32"	x 15 9/32"	x 10 7/8"	(2) 27 9/16" x 13 1/2" x 12 3/32"	(1) 27 9/16" x 13 1/2" x 3 1/2"
D KRA428B	26"	x 14 3/4"	x 8 1/8"	—	(1) 23 7/8" x 13 1/2" x 3 5/16"
E KRA429B	26"	x 14 3/4"	x 8 1/8"	(2) 23 7/8" x 13 1/2" x 11 9/32"	(1) 23 7/8" x 13 1/2" x 3 9/32"

COMPANION UNITS

	Roll Cabs	Tool Chests
A KR541A	KR558C	KR533B
B KR547	KR557B	KR537A
C KRA461A	KRA300F, KRA307F	KRA61D
D KRA428B	KRA352E, KRA379A	KRA56C, KRA58D, KRA59C
E KRA429B	KRA352E, KRA379A	KRA56C, KRA58D, KRA59C



D



E

KRA307F
 11,130 Cu. In.
 3,010 Sq. In.
 Load Cap. 1,160 lbs.

Includes 6 drawers of various depths, four 5" heavy-duty casters (2 swivel, 2 fixed) and the KR402A Side Handle. Features a stiffener for heavy load capacity. Drawers are secured by one lock.

Overall Length	Overall Width	Overall Height (w/Casters)	Net Weight Lbs.	Shipping Weight Lbs.
317 ¹ / ₁₆ "	20 ¹³ / ₁₆ "	36"	179	200

Drawers	Length	Width	Depth
1	26 ¹¹ / ₁₆ "	18 ³ / ₄ "	11 ⁷ / ₃₂ "
2	26 ⁵ / ₈ "	18 ³ / ₄ "	3 ⁵ / ₃₂ "
1	26 ⁵ / ₈ "	18 ³ / ₄ "	6 ³ / ₈ "
2	26 ⁵ / ₈ "	18 ³ / ₄ "	4 ³ / ₄ "

Suggested Top Chest: KRA61D.

KRA379A
 9,580 Cu. In.
 2,376 Sq. In.
 Load Cap. 1,020 lbs.

Drop-front encloses lower compartment and locks with drawers. It may be removed when optional 2- or 3-drawer sets (illustrated under cab and described below) are inserted into open compartment. All drawers lock without reinserting drop-front. Cab has a drawer tray, four 4" casters (2 swivel, 2 fixed) and KR402A Handle.

Overall Length	Overall Width	Overall Height (w/Casters)	Net Weight Lbs.	Shipping Weight Lbs.
26 ⁵ / ₈ "	19 ³ / ₄ "	37"	141	160

Tray, Compartment and Drawers	Length	Width	Depth
Tray	21 ¹³ / ₃₂ "	6"	3 ⁹ / ₁₆ "
Compartment	22 ¹ / ₂ "	19"	12 ¹ / ₈ "
3	21 ⁵ / ₈ "	17 ²³ / ₃₂ "	1 ²⁹ / ₃₂ "
2	21 ⁹ / ₁₆ "	17 ²³ / ₃₂ "	3 ⁹ / ₁₆ "

Suggested Top Chests: KRA56C, KRA58D and KRA59C.

KRA436A THREE DRAWER SET

Drawer Set Net Weight Lbs.	Drawer Set Shipping Weight Lbs.	Drawer/Roll Cab Net Weight Lbs.	Drawer/Roll Cab Shipping Weight Lbs.
29	32	170	192
Drawer	Length	Width	Depth
1	21 ⁵ / ₈ "	17 ²³ / ₃₂ "	17 ¹ / ₈ "
2	21 ⁹ / ₁₆ "	17 ²³ / ₃₂ "	3 ⁹ / ₁₆ "

KRA435A TWO DRAWER SET

Drawer Set Net Weight Lbs.	Drawer Set Shipping Weight Lbs.	Drawer/Roll Cab Net Weight Lbs.	Drawer/Roll Cab Shipping Weight Lbs.
24	28	165	188
Drawer	Length	Width	Depth
1	21 ⁹ / ₁₆ "	17 ²³ / ₃₂ "	3 ¹⁵ / ₁₆ "
1	21 ⁹ / ₁₆ "	17 ²³ / ₃₂ "	7 ¹⁵ / ₁₆ "



KRA436A



KRA435A

ROLL CABS

Storage

KRA380
9,310 Cu. In.
2,678 Sq. In.
Load Cap. 1,020 lbs.

Seven large drawers accommodate practically any size tool. Nearly identical to the KRA379A on the previous page, this roll cab includes two large drawers in place of the open compartment. Heavy duty 4" casters (2 swivel, 2 fixed), plus the KR402A Handle are included for easy mobility. A removable tray is included in the top drawer.

Overall Length	Overall Width	Overall Height (w/Casters)	Net Weight Lbs.	Shipping Weight Lbs.
26 ⁵ / ₈ "	19 ³ / ₄ "	37"	150	165

Tray and Drawers	Length	Width	Depth
Tray	21 ¹³ / ₃₂ "	6"	1 ¹ / ₁₆ "
3	21 ⁵ / ₈ "	17 ²³ / ₃₂ "	12 ⁵ / ₃₂ "
2	21 ⁹ / ₁₆ "	17 ²³ / ₃₂ "	3 ⁹ / ₁₆ "
1	21 ⁵ / ₈ "	17 ³ / ₄ "	3 ¹⁵ / ₁₆ "
1	21 ⁹ / ₁₆ "	17 ³ / ₄ "	7 ⁵ / ₈ "

Suggested Top Chests: KRA56C, KRA58D and KRA59C.



LOWER PANEL CLOSED



KRA352E
6,821 Cu. In.
1,459 Sq. In.
Load Cap. 500 lbs.

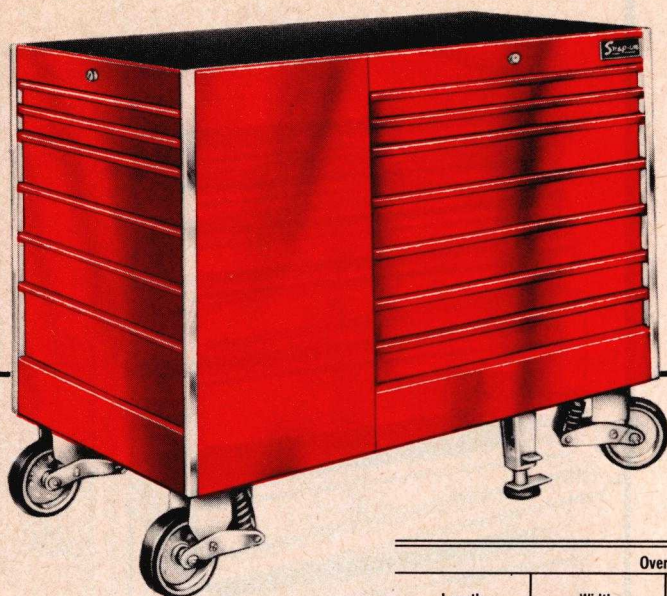
Three roomy drawers automatically lock when the lower compartment panel is closed and secured... when opened, the panel slides in under the drawers. Heavy gauge steel and welded construction give you a rugged roll cab that will assure long, dependable service. Easy glide heavy duty 4" casters (2 swivel, 2 fixed) and the KR402A Handle allow the roll cab to be rolled to the job with ease.

Overall Length	Overall Width	Overall Height (w/Casters)	Net Weight Lbs.	Shipping Weight Lbs.
26 ⁵ / ₈ "	19 ¹ / ₈ "	37 ¹ / ₄ "	101	115

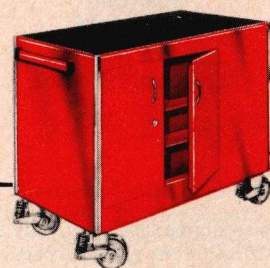
Open Compartment and Drawers	Length	Width	Depth
Compartment	26 ¹ / ₂ "	19"	12"
3	21 ⁵ / ₈ "	17 ⁵ / ₈ "	3 ⁷ / ₈ "

Suggested Top Chests: KRA56C, KRA58D and KRA59C.

HEAVY-DUTY ROLL CAB & ROLLA-BENCH



KR562A
22,708 Cu. In.
6,231 Sq. In.
Load Cap. 2,000 lbs.



Rear
View

All steel, welded construction provides long lasting support and strength. 13 drawers and a large storage compartment provide complete storage capacity. Front drawer section has 7 drawers; side section has 6 drawers. Features the KR402A Side Handle, tow bar package, floor lock mechanism and four 6" rubber-tired, spring-loaded casters (2 swivel, 2 fixed). Separate cylinder locks for each drawer section and the compartment doors can be opened with one key.

Overall				Rear Compartment		
Length	Width	Height (w/Casters)	Net Weight Lbs.	Length	Width	Height
49 ³ / ₄ "	26 ¹ / ₂ "	39 ¹ / ₄ "	369	17 ³ / ₈ "	65 ¹ / ₁₆ "	31 ¹¹ / ₃₂ "

Front Drawers				Side Drawers			
Drawers	Length	Width	Depth	Drawers	Length	Width	Depth
3	29 ³ / ₈ "	16 ¹ / ₈ "	1 ³ / ₄ "	2	24 ¹ / ₈ "	16 ¹ / ₈ "	1 ³ / ₄ "
4	29 ¹¹ / ₃₂ "	16 ¹ / ₈ "	3 ⁵ / ₈ "	3	24 ¹ / ₈ "	16 ¹ / ₈ "	3 ⁵ / ₈ "
				1	24 ¹ / ₈ "	16 ¹ / ₈ "	6 ⁵ / ₃₂ "



KRA300F
11,323 Cu. In.
2,905 Sq. In.
Load Cap. 1,120 lbs.



Roll Front
Closed

Rolla-Bench. Roll cab top and bottom are made of rugged 14 gauge steel. Top is reinforced to provide a sturdy base for bench grinders and other equipment and has a heavy masonite work surface. Includes roll front of interlocking aluminum panels in satin finish (see above)...glides up easily behind the drawers. Features four 5" diameter casters (2 swivel, 2 fixed) for complete mobility.

Overall Length	Overall Width	Overall Height (w/Casters)	Net Weight Lbs.	Shipping Weight Lbs.
33"	19"	37 ¹ / ₈ "	187	210

Compartment and Drawers	Length	Width	Depth
Compartment	27 ³ / ₄ "	18"	12 ¹ / ₂ "
3	8 ¹ / ₄ "	15 ¹ / ₄ "	1 ³ / ₁₆ "
3	26 ³ / ₄ "	15 ¹ / ₄ "	1 ⁵ / ₁₆ "
2	26 ³ / ₄ "	15 ¹ / ₄ "	3 ¹ / ₄ "

KRA404F Deep Accessory Drawer. There are any number of possible combinations. When 2 deep drawers are added (shown below) one drawer from the roll cab must be removed. A 1" stiffener provides added strength. Net weight is 14 pounds.

Length	Width	Depth
26 ³ / ₄ "	15 ¹ / ₄ "	6 ⁵ / ₈ "



KRA431F Three-Drawer Set (see above). Fits perfectly into factory-installed drawer slides in lower compartment.

Drawers	Length	Width	Depth	Drawer Weight
3	26 ³ / ₄ "	15 ¹ / ₄ "	3 ¹ / ₄ "	33 Lbs.

KRA434F Two-Drawer Set (not shown). Set consists of KRA404F deep drawer and one shallow drawer from KRA431F Set.

Drawers	Length	Width	Depth	Drawer Weight
1	26 ³ / ₄ "	15 ¹ / ₄ "	3 ¹ / ₄ "	24 Lbs.
1	26 ³ / ₄ "	15 ¹ / ₄ "	6 ⁵ / ₈ "	

INDUSTRIAL ROLL CAB & ROLL-ABOUT CART

Storage



KRA341C
7,890 Cu. In.
1,630 Sq. In.
Load Cap. 950 lbs.



KR483A

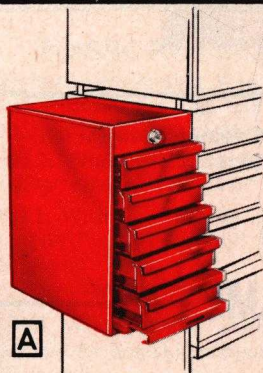
KRA341C Industrial Roll Cab. Large lower compartment has a panel cover which slides in under the drawers when compartment is open. Tumbler lock secures drawers and compartment simultaneously. Handles have rubber grips. Features two 10" semi-pneumatic wheels and two 5" lock-type swivel casters.

Overall Length	Overall Width	Overall Height (w/Casters)	Net Weight Lbs.	Shipping Weight Lbs.
32 ¹ / ₄ "	26 ³ / ₄ "	35 ¹ / ₂ "	121	130
Compartment and Drawers		Length	Width	Depth
Compartment 3		26 ¹ / ₂ " 21 ⁵ / ₈ "	19" 17 ⁵ / ₈ "	12" 3 ¹⁵ / ₁₆ "

KR483A Roll-About Cart. Provides instant access to all your needed tools when working under the car or under the hood. Features heavy duty, square tubular steel support legs, 2 large trays that will support all your parts and tools and 4 3" swivel casters for smooth-rolling portability. **CAUTION:** Load in each tool tray must not exceed 100 lbs. (45.3 kg).

Overall Length	Overall Width	Overall Height (Less Casters)	Diam. of Casters (4)
24"	36"	34 ¹ / ₄ "	3"
Shelves	Length	Width	Depth
2	23 ⁷ / ₈ "	35 ⁷ / ₈ "	2"

END CABS



A



B



C



D

A KR278 End Cab. Designed to store a wide variety of tools in a compact space. A locking front panel secures the contents of the five drawers.

B KR274A End Cab. Features three shallow drawers and a large compartment divided by a fixed shelf. The heavy gauge steel end cab can be suspended facing front, side or rear. A reversible door allows it to be hung from either side of the roll cab.

C KR272 End Cab. Constructed of heavy gauge steel, this end cab features two dividing shelves welded into place...providing three large compartments for your larger tools or equipment.

D KR273 End Cab. This heavy gauge steel unit features two doors, a fixed middle shelf and an adjustable top shelf to accommodate various size tools. Its sunk-in top can be used as a worktable.

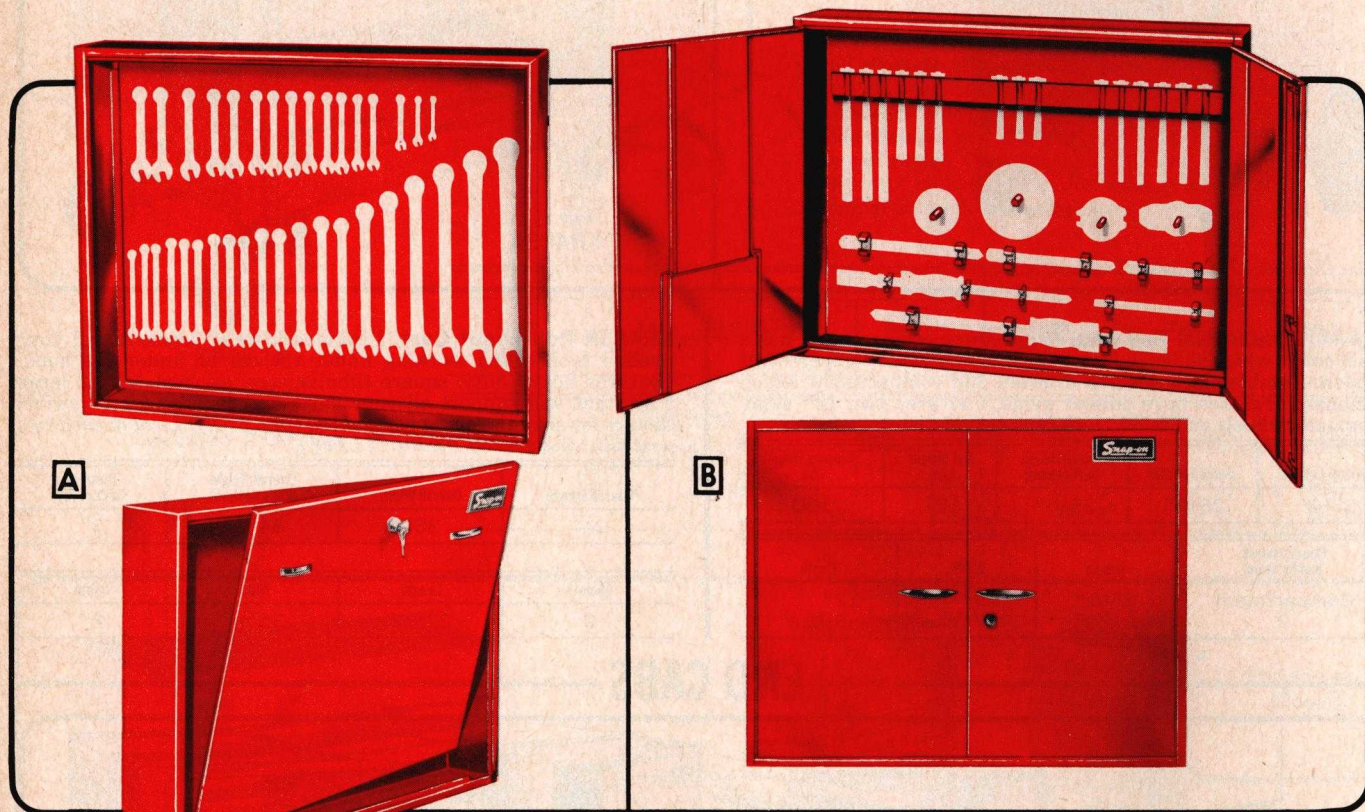
End Cab	Capacity		Overall Dimensions			Drawer Dimensions	Compartment Space (Height)			Weight	
	Cu. In.	Sq. In.	Depth	Width	Height		Top	Middle	Bottom	Net	Shipping
A KR278	748	374	12"	8 ¹ / ₁₆ "	13 ⁷ / ₈ "	10 ⁹ / ₁₆ " x 7 ¹ / ₈ " x 2"	—	—	—	22 lbs.	27 lbs.
B KR274A	6,873	1,045	18"	14 ³ / ₄ "	32"	11 ⁵ / ₃₂ " x 16 ⁵ / ₃₂ " x 11 ³ / ₃₂ "	12 ¹ / ₂ "	—	11 ³ / ₄ "	50 lbs.	61 lbs.
C KR272	5,760	540	18"	10"	32"	—	9 ¹ / ₂ "	10"	12 ¹ / ₂ "	34 lbs.	39 lbs.
D KR273	6,912	648	18"	12"	32"	—	Adjustable	Adjustable	12 ¹ / ₂ "	36 lbs.	43 lbs.

Wall Cabinets are designed to provide tool security and tool protection. *Snap-on* offers three quality designed and constructed wall cabinets for your selection. The KRA270A and the KRA271 differ only in door construction; the KRA270A having a hinged door, while the KRA271 has a removable door.

- **CONSTRUCTION**... Each *Snap-on* Wall Cabinet is ruggedly built of heavy gauge steel to withstand heavy use.
- **FINISH**... A long lasting baked-on red enamel finish protects against rust and corrosion and resists grease, oil and solvents.
- **LOCKS**... Cylinder locks are featured for added theft protection.

tion. These wall cabinets can be ordered keyed alike for added convenience.

- **MOUNTABLE**... Mount on either wall, stationary benches or your *Snap-on* Roll Cab.
- **TOOL CONTROL and INVENTORY**... To aid with tool and inventory control, display boards which clearly silhouette each tool for instant identification are available. Refer to your *Snap-on* Educational Service Program Catalog (SS309) for available boards.
- **SPECIFICATIONS**... Each Wall Cabinet measures 24 $\frac{3}{4}$ " high, 32 $\frac{3}{4}$ " wide and 6" deep.



A KRA271 Removable Door Wall Cabinet. Shown at left.
B KRA270A Hinged Door Wall Cabinet. Shown above.



A-FRAME

KRA213A A-FRAME SPECIFICATIONS

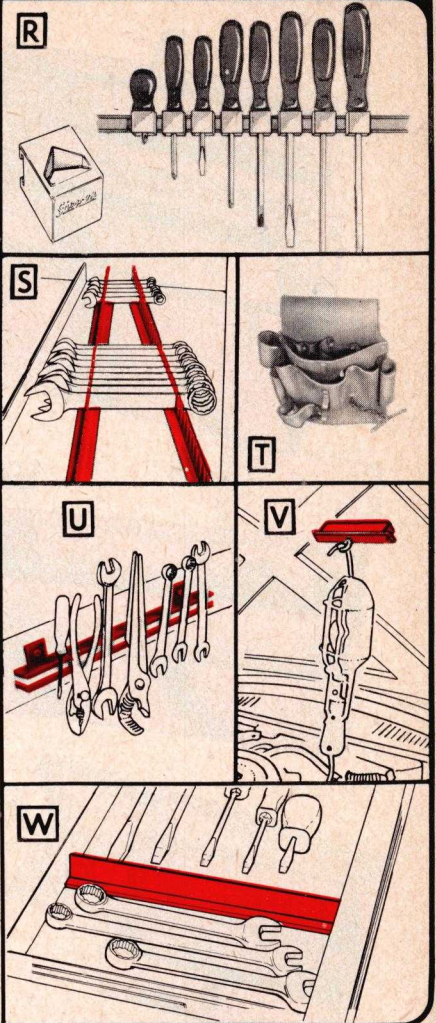
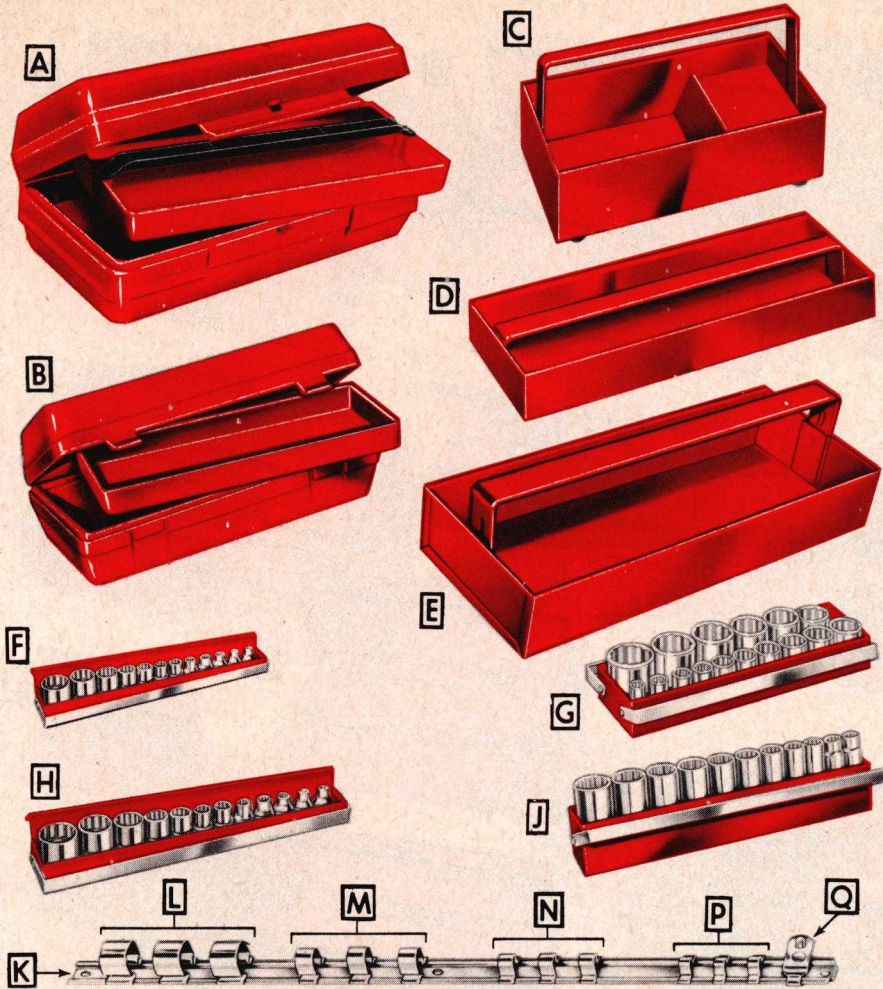
Height:	52"
Width:	27 $\frac{5}{8}$ "
Depth:	32 $\frac{1}{4}$ "
Square Inches:	1,260
Cubic Inches:	23,220

C KRA213A A-Frame. A mobile storage unit which provides convenient access of tools. The KRA213A A-Frame is divided into two sections. 1,260 square inches of interior storage provides maximum space for a variety of tools.

Up to four Tool Control Boards can attach securely to the A-Frame. These Tool Control Boards feature white silhouettes for instant tool identification. Refer to your *Snap-on* Educational Service Catalog (SS309) for available boards.

TOOL ORGANIZATION

Storage



PLASTIC TOOL BOXES

Double-wall construction. Won't chip, crack or dent with normal use. Immune to corrosion. Sturdy hinges and clasps.

A PB13. With tote tray. 21" x 10" x 7" O.D., 18 1/2" x 8 1/2" x 5 3/4" I.D. (3" below tray).

B PB11. With tote tray. 18" x 6 1/4" x 4 3/4" O.D., 16 3/4" x 4 1/2" x 3 3/4" I.D. (2 3/8" below tray).

TOTE TRAYS

C KTA5. With 10" x 6" shelf. Has four rubber feet for non-skid support. 18" x 10" x 4 1/2" overall.

D KTA3A. Tubular-type, pull-up handle lifts 1 5/8" 20 1/4" x 8" x 3 1/4" I.D. (with handle pushed down).

E KTA2. 19 1/8" x 7" x 3"

F KTA7. 19 3/8" x 8 1/16" x 3 5/16"

K SOCKET RAILS

A265. 7 3/8" long.

A269. 10 3/8" long.

A267. 13 3/8" long.

A270. 16 3/4" long.

A266. 23 3/8" long.

A268. 31 1/2" long.

SOCKET CLIPS

L A274C (25) For 3/4" drive.

M A273A (25) For 1/2" drive.

N A272A (25) For 3/8" drive.

P A271A (25) For 1/4" drive.

Q RAIL CLIP

A264A Rail Hold Down Clip. (10). Mounts to drawer, tote tray or wall cabinet, snapping open or closed to release socket rail.

SOCKET TRAYS

Stock No.	Accommodates Sockets/Sets	Overall Length
F KTA215A KTA220 KTA230	312SW, 312TW (p. 67). "F" Series of 3/8" drive sockets (p. 55). FM9 thru FM19 (p. 115).	13 1/2" 14 1/2" 8 3/4"
G KTA219 KTA242	319SW, 319TW (p. 67). 316SW, 316TW (p. 67).	13 1/16" 10 1/8"
H KTA232B	211F, 211FS (p. 55).	9 9/16"
I KTA231B KTA240A	211SF, 211SFS (p. 55). 311TS, 311S (p. 68).	8 3/4" 12 9/16"

R SCREWDRIVER HOLDER

A2768 Set. 8 white plastic holders (**A276-1**) with flexible tabs inside plus **A267 Socket Rail** listed below. Designed to slide onto any *Snap-on* socket rail listed below:

A265 7 3/8" long

A268 31 1/2" long

A266 23 3/8" long

A269 10 3/8" long

A267 13 3/8" long

A270 16 3/4" long

A276 Package of 25 plastic holders.

S WRENCH ORGANIZER

KRA15. A pair of 24" plastic organizers to keep wrenches in order in any size drawer. Cut to desired length and attach to drawer with foam tape backing.

T LEATHER TOOL POUCH

YA124A. For electronic and maintenance tools. Made of top grain cowhide with an assortment of pockets and a wide belt loop. Measures 8 1/2" x 10"

MAGNETIC TOOL HOLDERS

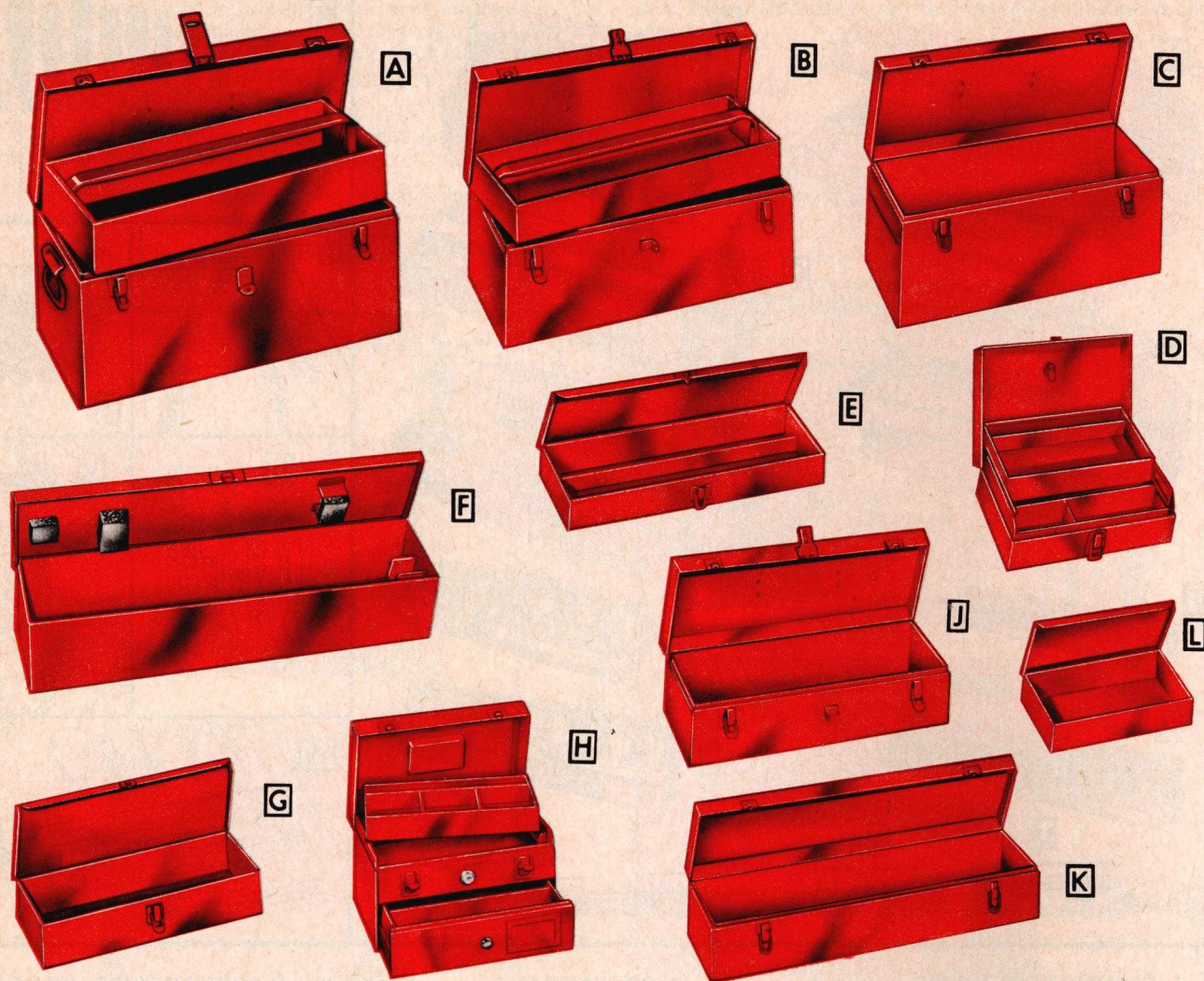
U YA162. Mounts on work benches or other access area. 13" overall length.

YA161. Similar to YA162, but 24" in length.

V YA163. With eyebolt attachment. "Snap" to a metal surface to suspend an extension light from it. 6" long.

W DRAWER DIVIDERS

KRA17. Partition tool box drawers by cutting 24" plastic drawer dividers to desired length. Attach to drawer with foam tape backing.



A KRA25A. Includes partitioned tote tray. 21 $\frac{1}{8}$ " x 8 $\frac{3}{4}$ " x 9 $\frac{1}{8}$ " 1,681 Cu. In., 184 Sq. In.

B KRA24. Comes with tote tray for extra portability. 19 $\frac{7}{8}$ " x 7 $\frac{3}{4}$ " x 7 $\frac{1}{2}$ " 1,155 Cu. In., 154 Sq. In.

C KRA30B. Ends of box are formed to provide finger grips. Accepts the KTA 3A Tote Tray on page 24 (not included). 20 $\frac{7}{8}$ " x 8 $\frac{3}{4}$ " x 8 $\frac{3}{4}$ " 1,568 Cu. In., 180 Sq. In.

D KRA65C. Top section moves back on side runners. Various size tool compartments. 11 $\frac{3}{4}$ " x 7 $\frac{3}{8}$ " x 3 $\frac{1}{2}$ " 294 Cu. In., 85 Sq. In.

E KRA279. Low, full-length partition separates tools. 15 $\frac{7}{16}$ " x 5" x 2" 153 Cu. In., 76 Sq. In.

F KRA94. Shaped metal rests hold the TE352 and TE602 Series TORQOMETERS® securely, and foam rubber pads cushion them from shock. Case measures 26" x 4 $\frac{9}{32}$ " x 4 $\frac{7}{32}$ " high. Approximately 470 Cu. In., 111 Sq. In.

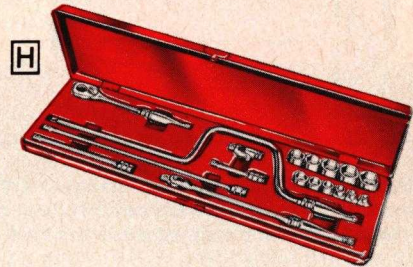
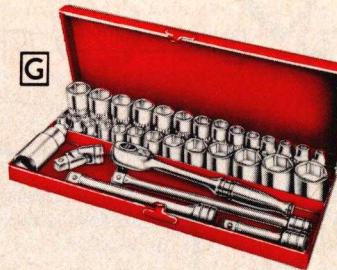
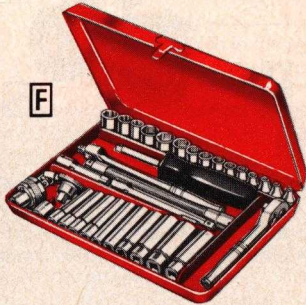
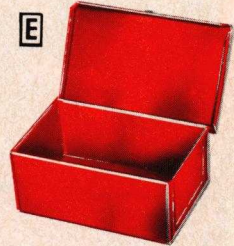
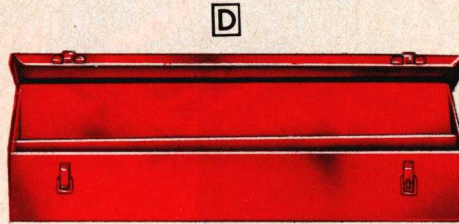
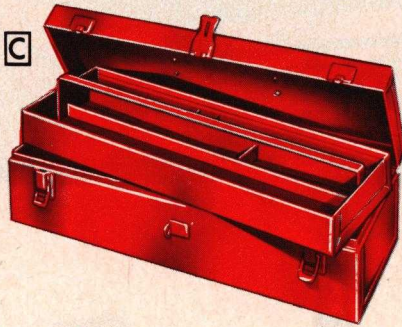
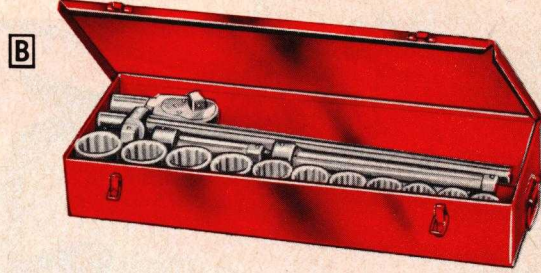
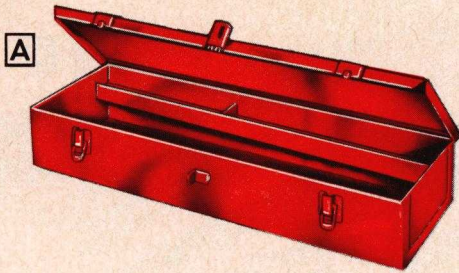
G KRA104. Especially useful for small tools or parts. 14" x 5 $\frac{1}{8}$ " x 2 $\frac{1}{2}$ " 217 Cu. In., 73 Sq. In.

H KRA149A. Primarily for electronic assembly tools. Top handle, top compartment with removable tray, and a drawer divided into 2 sections. 11 $\frac{7}{8}$ " x 7 $\frac{5}{16}$ " x 6 $\frac{5}{8}$ " 99 Cu. In., 62 Sq. In.

I KRA251A. Top handle, 2 clasps and latch. 18 $\frac{1}{2}$ " x 6 $\frac{3}{4}$ " x 5" 578 Cu. In., 122 Sq. In.

K KRA109. Long and narrow. Fold-down handle on cover. 25 $\frac{1}{2}$ " x 6" x 4 $\frac{1}{2}$ " 742 Cu. In., 155 Sq. In.

L KRA40. For small sets, tools or parts. 9 $\frac{1}{2}$ " x 5 $\frac{1}{2}$ " x 2" 104 Cu. In., 52 Sq. In.



TOOLS NOT INCLUDED

A KRA280. Compartments for sockets, ratchets and extensions. Handle on cover, 2 latches and grip clip. 23" x 7 1/4" x 3 5/8" 600 Cu. In., 167 Sq. In.

B KRA238A. For 1" drive sockets. Full-length hinge and 2 bale fasteners for securing lid. 31 1/2" x 11 1/4" x 5 1/4" 1,700 Cu. In., 340 Sq. In.

C KRA250B. Includes tote tray for extra portability. Suitcase-type handle, sturdy hinges, 2 spring clasps and a hasp for padlock. 18 1/2" x 6 3/4" x 5" 578 Cu. In., 122 Sq. In.

D KRA226A. For 3/4" drive sets. Lengthwise partition. 26 3/4" x 9" x 3 7/8" 885 Cu. In., 236 Sq. In.

E KRA111A. Designed to hold CG622BB Steering Wheel Puller, "TMA," "FA" or "SA" series of hex head drivers. Dimple lock insures positive closure. 7 1/2" x 4 3/4" x 3 13/16"

F KRA275. For the 134TM (1/4" Dr.) Socket Set. Partitions separate sockets, ratchets and extensions. Spring clip secures lid. 8 3/16" x 5 11/16" x 1"

G KRA253. Use for 3/8" drive starter set. 3 separate storage areas...one for various drivers and one each for metric sockets and standard sockets. Spring clips secures lid. 11 3/4" x 4 3/4" x 1 1/4"

H KRA284. Accepts a plastic tray for various sets. Will accept 1/4" drive and 3/8" drive sets. A metal spring-type fastener secures the lid. 19 1/4" x 5 5/8" x 1 1/4"

I KRA229. For nine piece 3/8" drive "FLEXOCKET" set. 7 7/16" x 2 3/8" x 1 13/16"

J KRA223A. For eight piece 3/8" drive "FLEXOCKET" set. 6 7/16" x 2 3/8" x 1 3/16"

K KRA255. Two lengthwise partitions for 1/4" drive units. Tools from 120ATMP Set fit case. 6 13/32" x 4 3/16" x 1"

L KRA222B. For 1/4" drive tools. Full-length partition. Spring clip-type fastener secures lid. 6 7/16" x 2 3/8" x 1 3/16"

M KRA206A. For seven 1/2" drive "FLEXOCKETS" Spring-type clip secures lid. 8 1/8" x 3 1/16" x 1 1/4"



A



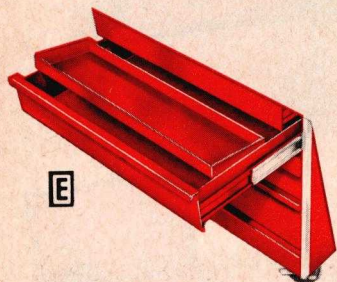
B



C



D



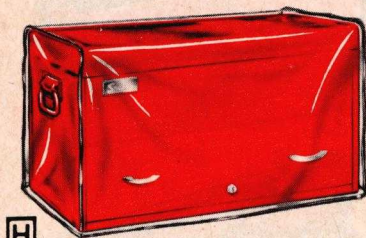
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F



G



H



J



K



L



M

A KR402A Roll Cab Handle. Handle, with rubber end caps, measures 17" long, 1²⁷/₃₂" wide and 3/16" deep and is held 1³/₄" away from roll cab. Ideal for hanging cords and fender covers, too.

B KRA16 Hang-on Valve Rack. Has sixteen 1¹/₁₆" holes to provide easy access to valves. Hang on any roll cab or tool chest with 1/4" or larger lip.

C KRA412A Folding Shelf. Bracket slips over raised lip of roll cab. Shelf is hinged to bracket which has drilled holes for mounting... folds out of the way when not in use. Measures 15⁵/₈" x 12" x 1/4".

D KRA10 Slotted Strip & KRA11 Divider Strip. Excellent for partitioning any drawer 1" or higher. Slots are 1¹/₃₂" apart. Both units are 32" long overall.

E Sliding Drawer Trays. Increase small parts and tools storage in roll cabs and tool chests with these handy removable trays.

KRA305 Tray. For KRA300F and KRA307F Roll Cabs.

KR306 Tray. For KR533B and KR537A Tool Chests and KR558C Roll Cab.

F KRL1 Black Drawer Liner. 1/16" thick polyethylene can be cut to size for lining drawers, roll cab tops, etc. Resists cracking, chipping and solvents in temperature extremes. Comes in 48" x 25" sheets.

G Rubber Mats. Ribbed, black neoprene mats for use on top of roll cabs. Mat protects roll cab units from damage.

KRR273 Rubber Mat. For KR273 Roll Cab.

KRR274 Rubber Mat. For KR274 Roll Cab.

KRR307 Rubber Mat. For KR307 Roll Cab.

KRR352 Rubber Mat. For KR352 Roll Cab.

KRR379 Rubber Mat. For KR379 and KR380 Roll Cab.

KRR412 Rubber Mat. For KR412 Roll Cab.

H Vinyl Covers. Protect storage units from dirt and exposure to solvents, scratches, etc. There are cutouts so handles remain accessible.

KRC1 Vinyl Cover. For KRA56C and KRA58D Tool Chests.

KRC3 Vinyl Cover. For KRA59C Tool Chest.

KRC5 Vinyl Cover. For KRA61D Tool Chest.

KRC6 Vinyl Cover. For KR550 Tool Chest.

KRC7 Vinyl Cover. For KR537A Tool Chest.

J MASTER® Padlocks. Brass cylinders, nickel-silver pin tumblers and brass locking levers provide maximum lock protection.

ML1 Lock. 1³/₄" steel case. Chrome-nickel tapered shackle hardened to resist file, saw or cutter. 5/16" diameter.

ML3 Lock. 1¹/₂" steel case. Identical to ML1 except diameter is 9/32".

ML7 Lock. 1¹/₄" steel case. Manganese steel shackle. 3/16" diameter.

K GA155A Key Chain. Spring-retractable with 24" long chain. clips onto belt or pocket. Split ring holds keys securely.

L SPP398 Touch-up Paint. For repairing nicks and scratches. 1/2-ounce bottle has blend of nitrocellulose acrylic lacquer and special solvents for brushability. Includes paint applicator in cap and a special compartment with a very fine grit rubbing compound.

M KRA445 Ball Bearing Caster Set. Made of strong durable rubber, 5" in diameter and 1¹/₈" wide. Special ball bearing feature assures smooth movement. Use on any roll cab except KR562A. Load capacity per caster is 200 lbs.

METRIC GENERAL SERVICE SETS



WARNING: In the set illustrations on this page and the following pages, storage unit drawers are shown open for display purposes only. In use, tipping could occur if a multiple number of loaded drawers are extended.

This intermediate-size General Service Set includes over 90 assorted tools. Included are a variety of $\frac{3}{8}$ " and $\frac{1}{2}$ " drive handles and accessories, with single and double hex socket sizes from 8 to 25 millimetres. Two styles of wrenches... "BOXOCKETS" and combinations... offer a range of 6 to 22 millimetres. Non-metric tools include hammers, punches and chisels, screwdrivers, pliers and other general application items. Complete with a handy "tote tray" for service work away from the shop, the accompanying Snap-on tool chest offers nearly 1,500 cubic inches of storage space. Like all Snap-on storage units, it's built to last and safeguard your tool inventory.

A 5095GMB Set. Tools listed below in KRA21C Chest (836 Sq. In., 1,460 Cu. In.).

5095GM Set. Tools only.

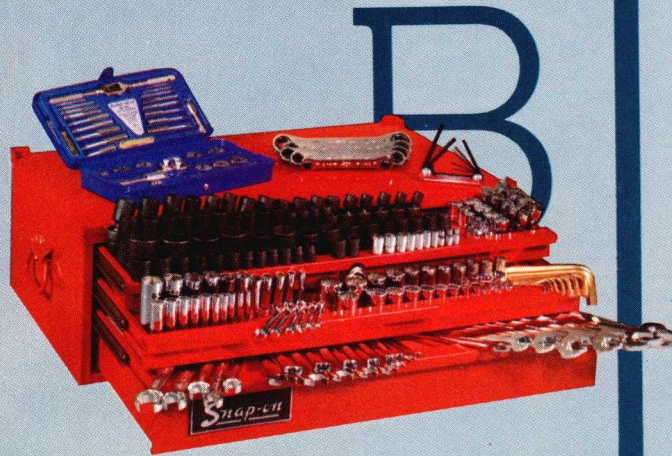
Stock No.	Description	Page
47	Heavy Duty Gripping Pliers (7 $\frac{1}{2}$ ")	145
87	Heavy Duty Diagonal Cutters (7 $\frac{1}{4}$ ")	148
96	Standard Needle Nose Pliers (7 $\frac{1}{8}$ ")	149
211SFSMY	$\frac{3}{8}$ " Dr. Socket Set (11 pcs., deep, 6 pt., 9-19 mm)	115
212FSMY	$\frac{3}{8}$ " Dr. Socket Set (12 pcs., std., 6 pt., 8-19 mm)	115
325MM	$\frac{1}{2}$ " Dr. Set (25 pcs., 10-25 mm)	119
BH92B	16 Oz. Plastic Tip Hammer	154
BP12A	12 Oz. Ball Peen Hammer	154
CS1	Flexible Wire Carbon Scraper	212
F10LB	$\frac{3}{8}$ " Dr. Breaker Bar	54
F720	$\frac{3}{8}$ " Dr. Standard Handle Ratchet	52
FU8A	$\frac{3}{8}$ " Dr. Universal Joint	54
FX2	$\frac{3}{8}$ " Dr. Extension Bar (3")	54
FX4	$\frac{3}{8}$ " Dr. Extension Bar (4 $\frac{9}{16}$ ")	54
FX8	$\frac{3}{8}$ " Dr. Extension Bar (8")	54
HB5	Ignition Point File	241
HS8A	Hacksaw Frame	170
KRA21C	Tool Chest	22
OEXM711K	Long Combination Wrench Set (11 pcs., 12-22 mm)	125
PPC710A	Punch and Chisel Set (11 pcs.)	157
S9704CFU	$\frac{3}{8}$ " Dr. Spark Plug "FLEXOCKET" (1 $\frac{3}{16}$ ")	239
S9704F	$\frac{3}{8}$ " Dr. Std. Spark Plug Socket (1 $\frac{1}{16}$ ")	239
S9706	$\frac{3}{8}$ " Dr. Std. Spark Plug Socket (5/8")	239
SSD2	Standard Screwdriver (.032" x $\frac{3}{16}$ ")	138
SSD4	Standard Screwdriver (.037" x $\frac{1}{4}$ ")	138
SSD8	Standard Screwdriver (.050" x $\frac{3}{8}$ ")	138
SSD145	Spark Test Screwdriver	141
SSDP42	PHILLIPS® Screwdriver (#2)	139
SSDP64	PHILLIPS® Screwdriver (#4)	139
XSM608	Short "BOXOCKET" Wrench Set (8 pcs., 6-20 mm)	126

This large General Service Set includes over 150 metric and non-metric hand tools in a rugged Snap-on tool chest. It features $\frac{1}{4}$ ", $\frac{3}{8}$ " and $\frac{1}{2}$ " drive size handles and accessories, plus a wide selection of single and double hex sockets and "FLEXOCKETS" with a range of 4 to 24 millimetres. "BOXOCKET" and combination wrenches offer sizes from 6 to 32 millimetres. Numerous non-metric tools... special hammers, punches and chisels, screwdrivers, pliers, etc.... cover most general service jobs. All tools are well organized in the roomy (2,500 cubic inches approx.) Snap-on chest that protects the tools. A durable enamel finish, strong frame/drawer construction and spotwelded seams assure long-term investment.

B 5189BGMB Set. Tools listed below in KRA56C Tool Chest (1,236 Sq. In., 2,492 Cu. In.).

Stock No.	Description	Page
47	Heavy Duty Gripping Pliers (7 $\frac{1}{2}$ ")	145
50C	Ignition Gripping Pliers (5")	145
87	Heavy Duty Diagonal Cutters (7 $\frac{1}{4}$ ")	148
115TMMB	$\frac{1}{4}$ " Dr. Set (15 pcs., 4-14 mm)	112
196	Needle Nose Pliers (7 $\frac{1}{8}$ ")	149
208CP	Angle Nose Battery Pliers (7 $\frac{3}{4}$ ")	222
261MF	$\frac{3}{8}$ " Dr. Set (61 pcs., 8-24 mm)	114
338MM	$\frac{1}{2}$ " Dr. Set (38 pcs., 10-32 mm)	119
1650	Prybar (16")	155
AC58B	Standard Wire Brush	212
AWM110CK	Hex Head Wrench Set (11 pcs., 2-12 mm)	110
BH92B	16 Oz. Plastic Tip Hammer	154
BP8A	8 Oz. Ball Peen Hammer	154
BP16A	16 Oz. Ball Peen Hammer	159
CP3A	Cotter Pin Puller	221
CS1	Flexible Wire Carbon Scraper	212
FB301	Automotive Wire Gap Gauge	179
FBM320	Metric Feeler Gauge	179
HB5	Ignition Point File	241
HS8A	Hacksaw Frame	170
KRA56C	Tool Chest	14
OEXM719	Long Combination Wrench Set (19 pcs., 10-32 mm)	125
PPC200AK	Punch and Chisel Set (20 pcs.)	157
S9704CFU	$\frac{3}{8}$ " Dr. Spark Plug "FLEXOCKET" (1 $\frac{3}{16}$ ")	239
SS5A	Standard Screw Starter	142
SSD145	Spark Test Screwdriver	141
SSDP50	PHILLIPS® Screwdriver Set	139
SSDS50	Standard Screwdriver Set	138
XBM611	Long "BOXOCKET" Wrench Set (11 pcs., 10-32mm)	126
XSM608	Short "BOXOCKET" Wrench Set (8 pcs., 6-20 mm)	126

METRIC SET BUILDING PROGRAM



Like the "U.S. Inch Size" tool sets on page 28 thru 31, this "Metric Set Building Program" begins with a small Starter Set (A) and eventually builds to a Complete Set (E) of metric tools. Along the way, Add-on Groups are picked up...on a gradual, budgeted basis.

Thus, your investment dollars are spent on only those tools you need — when you need them. And they pay for themselves because you're using them on more jobs. By having the *right tool for the right job*, you get the job done quicker and with less effort.

Various handle and accessory options are also available for all-metric services or specialized industrial applications.

Your Snap-on tool specialist can help plan and budget a metric program for you. It's a step in the right direction.

For safety sake, always keep tools clean and well-maintained.

5100AGMB Complete Set A (pictured). Includes 106 tools in KRA429B Drawer Section.

5100AGM. 106 tools only.

Set A

Stock No.	Description	Page
112TMMY	1/4" Dr. Std. 6 pt. Socket Set (12 pc. 4-14 mm)	112
211SFMY	3/8" Dr. Deep 6 pt. Socket Set (11 pc. 9-19 mm)	115
212FMY	3/8" Dr. Std. 12 pt. Socket Set (12 pc. 8-19 mm)	115
308IPLMY	1/2" Dr. Std. 6 pt. "FLEXOCKET" Set (8 pcs. 13-24 mm)	121
315IMM	1/2" Dr. Std. 6 pt. Impact Socket Set (15 pc. 10-27 mm)	121
AWM110CK	"L" Shape Hex Wrench Set (11 pc. 2-12mm)	110
OEXSM709	Short Comb. Wr. Set 12 pt. (9 pc. 10-18 mm)	124
OXIM706K	Midget Comb. Wrench Set 6 pt. (6 pc. 5-9 mm)	125
RXM605K	Flare Nut Open End Wrench Set 6 pt. (5 pc. 9-21 mm)	127
TDM117	Tap & Die Set (3-0.60 to 12-1.75 mm)	186

5100OPT Optional Accessories Set. 1/4" **SQUARE DRIVE:** TM70B Std. Ratchet (p. 44), TMU8 Universal Joint (p. 47), TMX2 2" Extension Bar (p. 44), TMX4 4" Extension Bar (p. 44), 3/8" **SQUARE DRIVE:** F4LA Speeder (p. 54), F10LB Breaker Bar (p. 54) F720 Std. Ratchet (p. 52), FU8A Universal Joint (p. 54), FXW2 3" Wobble Extension Bar (p. 54), FXW6 6" Wobble Extension Bar (p. 54).

5200AGMB Complete Set B (pictured). Includes Set A plus Set B Add-on Group below (215 tools total) in KRA429B Drawer Section.

5200AGM. 215 tools only.

5100GM2 Set B Add-on Group. 109 tools below.

Set B Add-on Group

Stock No.	Description	Page
111STMMY	1/4" Dr. Deep 6 pt. Socket Set (11 pc. 4-14 mm)	113
209FUMY	3/8" Dr. 12 pt. "FLEXOCKET" Set (9 pc. 10-19 mm)	116
211IPFMY	3/8" Dr. Std. 6 pt. Imp. "FLEX" Set (11 pc. 9-19 mm)	118
214IMFMY	3/8" Dr. Std. 6 pt. IMP. Socket Set (14 pc. 8-24 mm)	118
214SIMFMY	3/8" Dr. Deep 6 pt. Imp. Socket Set (14 pc. 8-24 mm)	118
212FSMY	3/8" Dr. Std. 6 pt. Socket Set (12 pc. 8-19 mm)	115
310SWMY	1/2" Dr. Std. 12 pt. Socket Set (10 pc. 10-19 mm)	120
AWM7K	Hex Wrench Set (7 pc. 1.5-6 mm)	110
(a) OEXM6	Short Comb. Wrench (12 pt. 6 mm)	124
(a) OEXM7	Short Comb. Wrench (12 pt. 7 mm)	124
(a) OEXM8	Short Comb. Wrench (12 pt. 8 mm)	124
(a) OEXM9	Short Comb. Wrench (12 pt. 9 mm)	124
(a) OEXM19	Short Comb. Wrench (12 pt. 19 mm)	124
OEXM711K	Long Comb. Wrench Set 12 pt. (11 pc. 12-22 mm)	124
RBM605S	Ratcheting "BOXOCKET" Set 6 pt. (5 pc. 10-19 mm)	126
(a) C142	Kit Bag for OEXM Short Comb. Wrenches	124

5200OPT Optional Accessories Set. 1/4" **SQUARE DRIVE:** TM4A Screwdriver-type Handle (p. 45), TM10F Breaker Bar (p. 45), TMX60 6" Extension Bar (p. 44), TMXW4 4" Wobble Extension Bar (p. 44), 3/8" **SQUARE DRIVE:** F731 Flex-head Ratchet (p. 52), FXW1 1" Wobble Extension Bar (p. 54), FXW8 8" Wobble Extension Bar (p. 54), 1/2" **SQUARE DRIVE:** S8 Universal Joint (p. 69), S710 Standard Ratchet (p. 65), SN18A Breaker Bar (p. 69), SX3 3" Extension Bar (p. 69), SX5 5" Extension Bar (p. 69).

METRIC SET BUILDING PROGRAM (cont.)

5300AGMB Complete Set C (pictured). Includes Sets A and B plus Set C Add-on Group below (280 tools total) in KRA59C Tool Chest.

5300AGM. 280 tools only.

5100GM3 Set C Add-on Group. 65 tools below.

Set C Add-on Group

Stock No.	Description	Page
110TMUSM	1/4" Dr. "FLEXOCKET" Set 6 pt. (10 pc. 5.5-14 mm)	113
207FAM	3/8" Dr. Hex Driver Set (7 pc. 4-10 mm)	116
306SM	1/2" Dr. Deep Socket Set 12 pt. (6 pc. 14-27 mm)	120
CXM1113	Half Moon "BOXOCKET" (12 pt. 11 & 13 mm)	126
CXM1417	Half Moon "BOXOCKET" (12 pt. 14 & 17 mm)	126
CXM1519	Half Moon "BOXOCKET" (12 pt. 15 & 19 mm)	126
(c) FM20 to 26	3/8" Dr. Std. Sockets (12 pt. 20-26 mm)	115
(b) FSM61	3/8" Dr. Std. Socket (6 pt. 6 mm)	115
(b) FSM71	3/8" Dr. Std. Socket (6 pt. 7 mm)	115
(b) FSM201	3/8" Dr. Std. Socket (6 pt. 20 mm)	115
(b) FSM211	3/8" Dr. Std. Socket (6 pt. 21 mm)	115
(b) FSM221	3/8" Dr. Std. Socket (6 pt. 22 mm)	115
(b) FSM231	3/8" Dr. Std. Socket (6 pt. 23 mm)	115
(b) FSM241	3/8" Dr. Std. Socket (6 pt. 24 mm)	115
(b) FSM251	3/8" Dr. Std. Socket (6 pt. 25 mm)	115
(b) FSM261	3/8" Dr. Std. Socket (6 pt. 26 mm)	115
LDHM242	3/4" Dr. Std. Socket (12 pt. 24 mm)	122
LDHM302	3/4" Dr. Std. Socket (12 pt. 30 mm)	122
LDHM322	3/4" Dr. Std. Socket (12 pt. 32 mm)	122
LDHM462	3/4" Dr. Std. Socket (12 pt. 46 mm)	122
(e) SWM201 to 321	1/2" Dr. Std. Sockets (12 pt. 20-32 mm)	120
XSM608K	Short "BOXOCKET" Set (6 & 12 pt. 6-20 mm)	126

5300OPT Optional Accessories Set. 3/8" **SQUARE DRIVE:** F732 Bent Flex-head Ratchet (p. 52), FXW4 4" Wobble Extension Bar (p. 54), FXW11 12" Wobble Extension Bar (p. 54), 1/2" **SQUARE DRIVE:** GLA12 1/2" to 3/4" Dr. Adaptor (p. 77), SL715 Long Ratchet (p. 67), S4 Speeder (p. 66), S67 Ratcheting Adaptor (p. 65), SX10 10" Extension Bar (p.66).

5400AGMB Complete Set D (pictured). Includes Sets A, B and C plus Set D Add-on Group below (350 tools total) in KRA59C Tool Chest.

5400AGM. 350 tools only.

5100GM4 Set D Add-on Group. 70 tools below.

Set D Add-on Group

Stock No.	Description	Page
211SFMY	3/8" Dr. Deep Socket Set 12 pt. (11 pc. 9-19 mm)	115
214FRHM	Crowfoot Flare Nut Wrench Set (14 pc. 9-22 mm)	117
215FSUM	3/8" Dr. "FLEXOCKET" Set 6 pt. (5 pc. 7-24 mm)	116
216FCOM	Crowfoot Open End Wrench Set (16 pc. 9-24 mm)	117
306SAM	1/2" Dr. Hex Head Driver Set (6 pc. 6-17 mm)	119
(d) OEXM100	Long Comb. Wrench (12 pt. 10 mm)	125
(d) OEXM110	Long Comb. Wrench (12 pt. 11 mm)	125
(d) OEXM230	Long Comb. Wrench (12 pt. 23 mm)	125
(d) OEXM240	Long Comb. Wrench (12 pt. 24 mm)	125
(d) OEXM260	Long Comb. Wrench (12 pt. 26 mm)	125
(d) OEXM270	Long Comb. Wrench (12 pt. 27 mm)	125
(d) OEXM300	Long Comb. Wrench (12 pt. 30 mm)	125
(d) OEXM320	Long Comb. Wrench (12 pt. 32 mm)	125
(d) C191	Kit Bag for OEXM Long Comb. Wrenches	125

5500AGMB Complete Set E (pictured). Includes Sets A, B, C and D plus Set E Add-on Group below (399 tools total) in KRA59C Tool Chest.

5500AGM. 399 tools only.

5100GM5 Set E Add-on Group. 49 tools below.

Set E Add-on Group

Stock No.	Description	Page
206FAML	3/8" Long Driver (6 pc. 4-10 mm)	116
208FSUMY	3/8" Dr. Deep "FLEXOCKET" Set 6 pt. (8 pcs. 10-17 mm)	116
VOM817	Std. Open End Wrench Set (17 pcs. 6-32 mm)	127
VSM8010K	Angle Head Open End Wrench Set (10 pc. 10-19 mm)	127
XBM606	Long "BOXOCKET" Set 12 pt. (6 pc. 10-19 mm)	126
XSM67S	Short "BOXOCKET" Wrench (6 pt. 6 & 7 mm)	126
XSM89S	Short "BOXOCKET" Wrench (6 pt. 8 & 9 mm)	126

FOOTNOTES

Key	Explanation	Page
(a) added to make	OEXSM714K Set	124
(b) added to make	221FSM Set	115
(c) added to make	217FM Set	115
(d) added to make	OEXM719 Set	125
(e) added to make	323SWM Set	120



U.S. SET BUILDING PROGRAM

The following "U.S.-Size" sets represent a unique set Building Program to serve every mechanic — young apprentice or master technician.

Here is how the program works. An initial investment is made to own Set 1. Thereafter, additional tools are added from the Set 2 Add-on Group (p. 32) to eventually own Complete Set 2... and so forth until Set 6 is reached.

Or you may choose to begin at a higher level than Set 1... Complete Set 4 for example. This would include Set 1 *plus* Set

2, 3 and 4 Add-on Groups. (Trading in the "other" tools you presently own will help recoup previous tool dollars.)

It's a simple program. And yet if followed, it will provide the *right* tool for the *right* job at the *right* time. Your Snap-on representative can help inventory your present tools to help you decide where to begin.

At Snap-on, we're helping to plan for tomorrow by serving you today.

1



6100AGSB Complete Set 1 (pictured). Includes 141 tools in KRA58D Tool Chest.

6100AGS. 141 tools only.

Optional Storage Unit: KRA59C.

Start your tool set building program with this wide assortment of popular hand tools, including $\frac{1}{4}$ " and $\frac{3}{8}$ " drive components in a heavy-duty tool chest. This "Starter" set gives you the base upon which to build your tool inventory in the future...and yet it is modestly priced.

6200BGSB Complete Set 2 (pictured). Includes Set 1 plus Set 2 Add-on Group (p. 32, 175 tools total) in KRA59C Tool Chest.

6200BGS. 175 tools only.

6100GS2 Set 2 Add-on Group. 34 tools listed on page 32.

In addition to the tools in the previous set, Set #2 adds a $\frac{1}{2}$ " drive set...plus other standard and special items to handle many of your maintenance challenges. More storage space is also provided with a larger tool chest.



2

3



6300BGSB Complete Set 3 (pictured). Includes Sets 1 and 2 plus Set 3 Add-on Group (p. 32, 233 tools total) in KRA59C Tool Chest and KRA379A Roll Cab.

6300BGS. 233 tools only.

6100GS3 Set 3 Add-on Group. 58 tools listed on page 32.

More of everything plus a Roll Cab/Tool Chest combination highlight additions to Set #3. You're now halfway toward Big Set #6 and confidently building your tool inventory. As your maintenance challenges become greater your tool selection meets your needs and that means more customer satisfaction.



6400BGSB Complete Set 4 (pictured). Includes Sets 1, 2, and 3 plus Set 4 Add-on Group (p. 32, 332 tools total) in KRA59C Tool Chest, KRA379A Roll Cab and KRA436A Drawer Set.

6400BGS. 332 tools only.

6100GS4 Set 4 Add-on Group. 99 tools listed on page 32.

More "bread and butter" items, specialty tools, body, tune-up and puller components are added to your existing tools as you move up to Set #4. Profits are building as you're now handling most repair work by having the right tool for the job. A set of three roll cab drawers also provide more storage.

5

6500BGSB Complete Set 5 (pictured). Includes Sets 1, 2, 3 and 4 plus Set 5 Add-on Group (p. 33, 495 tools total) in KR537A Tool Chest and KR557B Roll Cab.

6500BGS. 495 tools only.

6100GS5 Set 5 Add-on Group. 163 tools listed on page 33.



With Set #5 you have added a prestige roll cab and tool chest combination...along with more tools! Featured are many more $\frac{1}{4}$ " $\frac{3}{8}$ " and $\frac{1}{2}$ " drive tools plus a popular puller set. Your tool selection is almost complete...only one more step toward total tool capability.

6



6600BGSB Complete Set 6 (pictured). Includes Sets 1, 2, 3, 4 and 5 plus Set 6 Add-on Group (p. 33, 627 tools total) in KR537A Tool Chest and KR557B Roll Cab.
6600BGS. 627 tools only.
6100AGS6 Set 6 Add-on Group. 132 tools listed on page 33.

Congratulations! Being a "Master Mechanic," you've now built a tool inventory complementing your ability. A large puller set, additional wrenches and other hand tools, plus Weatherhead and 3/4" drive socket sets have brought you to the crest of classic style and quality. You're at the top in every respect.

Contents of Sets

Set 1 (6100AGS)

Stock No.	Description	Page
87	Heavy Duty Diagonal Cutters (7 1/4")	148
90AP	Interlocking Joint Pliers (9 1/4")	149
96	Needle Nose Pliers (7 1/8")	149
114TMP	1/4" Dr. Set (14 pcs., std., 6 pt.)	43
131A	Brake Spring Pliers (13 1/4")	235
208CP	Angle-Nose Battery Pliers (7 3/4")	223
211FSFY	3/8" Dr. Socket Set (11 pcs., deep, 6 pt.)	55
212FY	3/8" Dr. Socket Set (12 pcs., std., 12 pt.)	55
1650	Prybar (16")	155
2011CITK	Tune-Up Kit (14 pcs.)	238
A173	Radiator Hose Tool	242
AW1015AK	"L" Hex Wrench Set (15 pcs.)	110
B1356C	Brake Shoe Spring Tool	235
B1461	Brake Adjusting Tool	234
B1463A	Brake Bleeder Wrench	234
B3404B	Brake Adjusting Tool	234
BH92B	16 Oz. Plastic Tip Hammer	154
BP12A	12 Oz. Ball Peen Hammer	154
BP20A	20 Oz. Ball Peen Hammer	154
BTC7	Battery Post Cleaner	222
CJ92	Battery Clamp Puller	208
CT4C	Circuit Tester (2-18 volt)	275
F720	3/8" Dr. Std. Ratchet	52
FB301	8-Wire Gap Gauge (.022"- .040")	179
FB325A	25 Blade Feeler Gauge (.0015"- .025")	178
FU8A	3/8" Dr. Universal Joint	54
FX2	3/8" Dr. Extension Bar (3")	54
FX6	3/8" Dr. Extension Bar (6")	54
FX11	3/8" Dr. Extension Bar (12")	54
HCP48BP	Corbin Hose Clamp Pliers (8")	242
HS12	Deluxe Hacksaw Frame	170
OEX709	Long Combination Wrench Set (9 pcs., 12 pt.)	96
PK23	Chisel Edge Scraper	212
PPC710A	Punch and Chisel Set (11 pcs.)	157
R1618	Ratcheting "BOXOCKET" (12 pt.)	97
RXS605	Open End/Flare Nut Wrench Set (5 pcs.)	102
S8184	Brake Bleeder Wrench	234
S9704CFU	3/8" Dr. Spark Plug "FLEXOCKET" (1 3/16")	239
S9706AFU	3/8" Dr. Spark Plug "FLEXOCKET" (5/8")	239
SDX80	Std. and PHILLIPS® Screwdriver Set (8 pcs.)	138
TM65	1/4" Dr. Flexible Adjusting Wrench	45
TMA4	1/4" Dr. Hex Head Driver (1/8")	48
VP10R	Standard VISE-GRIP®	152
XB608B	"BOXOCKET" Wrench Set (8 pcs., 12 pt.)	98

Set 2 Add-on Group (6100GS2)

Stock No.	Description	Page
316MP	1/2" Dr. Set (16 pcs., std., 12 pt.)	64
F731	3/8" Dr. Flex-Head Ratchet	52
HL116P	Interlocking Joint Pliers (16")	149
PPC1001	Bronze Punch (8")	158
SSD1410	Cabinet Screwdriver (.032" x 1 1/64")	138
(a) SSDP63	PHILLIPS® Screwdriver (#3)	139
(a) SSDP64	PHILLIPS® Screwdriver (#4)	139
SSDP102	Long PHILLIPS® Screwdriver (#2)	139
(b) TMA4	1/4" Dr. Long Shank Driver	45
(b) TM10F	1/4" Dr. Breaker Bar	45
(b) TM408	1/4" Dr. Double Square Socket (1/4")	48
(b) TM410	1/4" Dr. Double Square Socket (5/16")	48
(b) TM412	1/4" Dr. Double Square Socket (3/8")	48
(b) TMX60	1/4" Dr. Extension Bar (6")	45
VO806	Std. Open End Wrench Set (6 pcs.)	101
KRA255	Metal Box for all 1/4" Dr. Tools	23

Set 3 Add-on Group (6100GS3)

Stock No.	Description	Page
5ASA	Awl (8 1/2")	158
(c) 110STMV	1/4" Dr. Socket Set (10 pcs., deep, 6 pt.)	46
208FSY	3/8" Dr. "FLEXOCKET" Set (8 pcs., std., 6 pt.)	56
208PIT	3/8" Dr. Impact Driver Set (8 pcs.)	57
311TSY	1/2" Dr. Socket Set (11 pcs., X-deep, 6 pt.)	68
A2	Handle Adaptor (3/8" Dr. to 1/2" Dr.)	69
GAX1	Handle Adaptor (1/2" Dr. to 3/8" Dr.)	71
FX1	3/8" Dr. Extension Bar (1 1/2")	54
FX18	3/8" Dr. Extension Bar (18")	54
PT28B	Magnetic Pick-up Tool	187
S8	1/2" Dr. Universal Joint	69
S9704F	3/8" Dr. Spark Plug Socket (1 3/16")	239
S9706	3/8" Dr. Spark Plug Socket (5/8")	239
SL715	1/2" Dr. Long Handle Ratchet	65
(d) SW121	1/2" Dr. Socket (3/8" std., 12 pt.)	67
(d) SW381	1/2" Dr. Socket (1 3/16" std., 12 pt.)	67
(d) SW401	1/2" Dr. Socket (1 1/4" std., 12 pt.)	67
(d) SW421	1/2" Dr. Socket (1 5/16" std., 12 pt.)	67
SX3	1/2" Dr. Extension Bar (3")	66
SX20	1/2" Dr. Extension Bar (20")	66
(c) TM4CS	1/4" Dr. Long Shank Driver	45
(c) TM61A	1/4" Dr. "FLEXEXTENSION" (6")	45
(c) TM67A	1/4" Dr. Ratchet Adaptor	47
(c) TM82	1/4" Dr. Standard Short Driver (1/4" x .032")	48
(c) TMS70	1/4" Dr. Ratchet Spinner	44
(d) A266	Socket Rail for all "SW" Sockets	21
KRA275	Metal Box for all 1/4" Dr. Tools	23

Set 4 Add-on Group (6100GS4)

Stock No.	Description	Page
GASA	Awl (6 1/2")	158
8HR	Half-Round File	172
8MA	Mill File	172
8R	Round File	172
49P	H. D. Slip Joint Pliers (9 1/8")	145
70CP	Lock Ring Pliers (90° tip, 8 7/8" long)	150
A118	Electric Switch Socket (3/8" Dr., 1" wr. size)	214
A119A	Oil Pressure Sender Socket (3/8" Dr.)	225
A135	Shock Absorber Socket (1/2" Dr.)	264
A136	Shock Absorber Socket (1/2" Dr.)	264
A159	Door Handle Removal Tool	237
AC58B	Standard Wire Brush	212
B260	Battery Cable Terminal Pliers	222
B1462A	Brake Adjusting Tool	234
BH24A	20 Oz. Bronze Tip Hammer	154
BP32A	32 Oz. Ball Peen Hammer	154
CJ98D	Bolt-Grip Puller Set (28 pcs.)	202
CP3A	Cotter Pin Puller	221
CSA12	Rigid Carbon Scraper	212
FTX500	3/8" Dr. Driver (Size: T-50)	58
GA51A	Hinged Mirror (1 1/16" x 2 9/16")	187
GA98	Tool Holder	172
GA169	Utility Knife	171
OEXS709	Short Combination Wrench Set (9 pcs., 12 pt.)	95
(e) PPC3A	Center Punch (1/8" point, 5" long)	156
(e) PPC104A	Pin Punch (1/8" point, 4 3/4" long)	156
(e) PPC108A	Pin Punch (1/4" point, 5 3/4" long)	156
(e) PPC204A	Starter Punch (1/8" point, 5 3/4" long)	156
(e) PPC208A	Starter Punch (1/4" point, 6 3/4" long)	156
PR2	Snap Ring Pliers (straight, 45° 90° tips)	150
(f) R810A	Ratcheting "BOXOCKET" (12 pt.)	97
(f) R1214A	Ratcheting "BOXOCKET" (12 pt.)	97
(f) R2022	Ratcheting "BOXOCKET" (12 pt.)	97
(f) R2426	Ratcheting "BOXOCKET" (12 pt.)	97
(f) R2830	Ratcheting "BOXOCKET" (12 pt.)	97
REX10	Bolt and Stud Extractor Set (10 pcs.)	188
S8564B	Distributor Wrench (1/2")	240
S9832C	Distributor Wrench (9/16")	240
SSD418	Std. Screwdriver (.075" x 1/2" x 18")	140
SSD422A	Std. Screwdriver (.046" x 5/16" x 21 3/4")	140
SSD1416	Std. Screwdriver (.028" x 1 3/64" x 16")	138
SSDP216	PHILLIPS® Screwdriver (#2 x 16")	140
TF528C	Tube Cutting/Flaring Set	153
TM83A	Carb./Dist. Screwdriver (1/4" Dr., 1/32" x 2 3/64")	48
TM84	Carb./Dist. Screwdriver (1/4" Dr., 1/32" x 7/16")	48
TM85	Carb./Dist. Screwdriver (1/4" Dr., 1/32" x 9/32")	48
XSO608	"BOXOCKET" Wrench Set (8 pcs., dwarf, 12 pt.)	99
YA152	10' Tape Measure	180
C62B	Kit Bag for all Ratcheting "BOXOCKETS"	97

Set 5 Add-on Group (6100GS5)

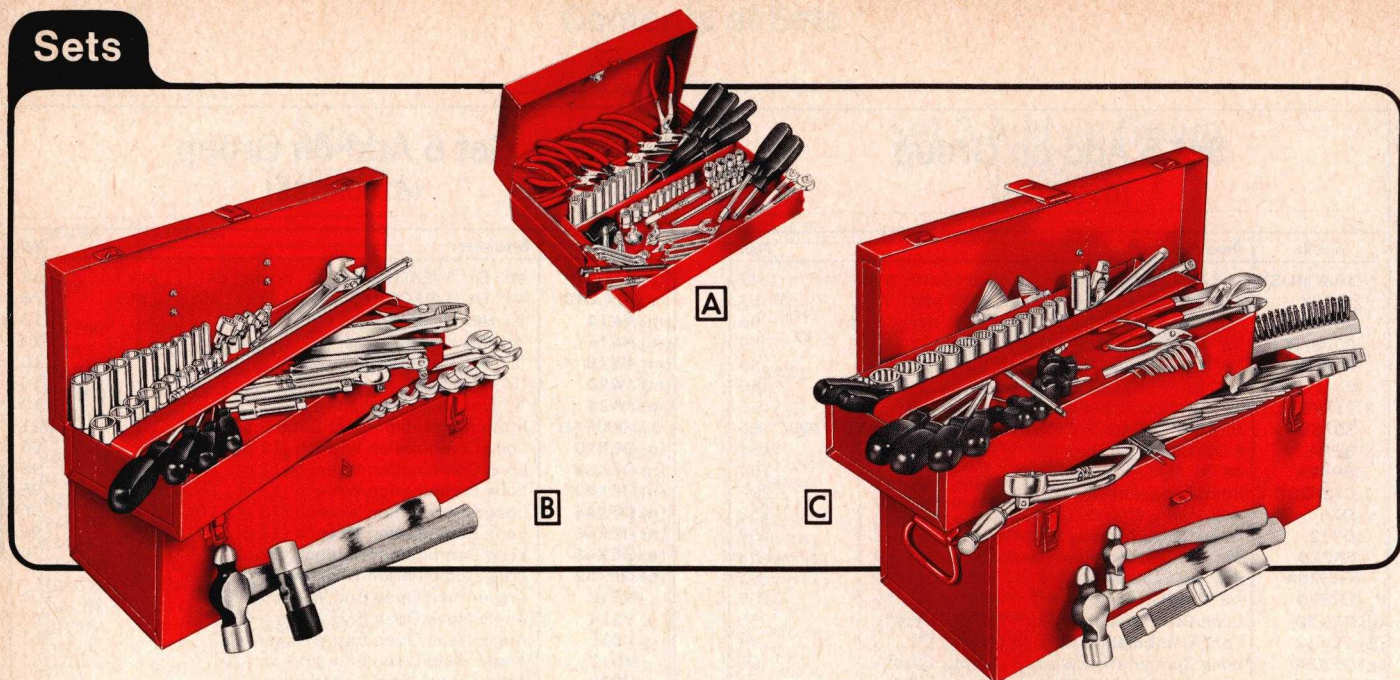
Stock No.	Description	Page
108TMUSY	1/4" Dr. "FLEXOCKET" Set (8 pcs., std., 6 pt.)	47
207FY	3/8" Dr. Dbl. Square Socket Set (7 pcs.)	57
207FSU	3/8" Dr. "FLEXOCKET" Set (7 pcs., deep, 6 pt.)	56
207SFRH	3/8" Dr. Crowfoot Set (7 pcs., std., 6 pt.)	59
208FAY	3/8" Dr. Standard Hex Driver Set (8 pcs.)	58
211FUY	3/8" Dr. "FLEXOCKET" Set (11 pcs., std., 12 pt.)	56
211FSY	3/8" Dr. Socket Set (11 pcs., std., 6 pt.)	55
307SUY	1/2" Dr. "FLEXOCKET" Set (7 pcs., std., 6 pt.)	66
BP8A	8 Oz. Ball Peen Hammer	154
BP48A	48 Oz. Ball Peen Hammer	154
CJ282BB	Interchangeable Puller Set	202
D76	Adjustable Wrench (3/4" cap.)	152
D712	Adjustable Wrench (1 5/16" cap.)	152
FK720	3/8" Dr. Short Handle Ratchet	52
FRS70A	3/8" Dr. Spinner	53
LRS70	1/2" Dr. Ratchet Spinner	65
(g) OEX30	Long Combination Wrench (12 pt., 1 5/16")	96
(g) OEX32	Long Combination Wrench (12 pt., 1")	96
(g) OEX34	Long Combination Wrench (12 pt., 1 1/16")	96
(g) OEX36	Long Combination Wrench (12 pt., 1 1/8")	96
(g) OEX40	Long Combination Wrench (12 pt., 1 1/4")	96
OXI705	Midget Combination Wrench Set (5 pcs., 6 pt.)	95
(h) PPC110A	Pin Punch (5/16" point, 6 1/4" long)	156
(h) PPC210A	Starter Punch (5/16" point, 7 1/4" long)	156
(h) PPC824A	Flat Chisel (3/4" edge, 7 1/4" long)	156
(h) PPC828A	Flat Chisel (7/8" edge, 8" long)	156
PW14B	External Pipe Wrench (2" capacity)	152
S67	1/2" Dr. Ratchet Adaptor	65
S711A	1/2" Dr. Flex-Head Ratchet	65
(j) SW441	1/2" Dr. Socket (std., 12 pt., 1 3/8")	67
(j) SW461	1/2" Dr. Socket (std., 12 pt., 1 7/16")	67
(j) SW481	1/2" Dr. Socket (std., 12 pt., 1 1/2")	67
TD9902	U. S. Tap and Die Set	184
(k) TM04	1/4" Dr. Socket (std., 6 pt., 1/8")	46
(k) TM05	1/4" Dr. Socket (std., 6 pt., 5/32")	46
(k) TM5	1/4" Dr. Sliding T-Handle	45
(k) TM27	1/4" Dr. Clutch Head Driver (1 1/64" bit dia.)	48
(k) TM30	1/4" Dr. Clutch Head Driver (1 5/64" bit dia.)	48
(k) TM31	1/4" Dr. Clutch Head Driver (5/32" bit dia.)	48
(k) TM62A	1/4" Dr. Flexible Driver	45
(k) TMA2 1/2"	1/4" Dr. Hex Head Driver (5/64")	48
(k) TMA3	1/4" Dr. Hex Head Driver (3/32")	48
(k) TMA3 1/2"	1/4" Dr. Hex Head Driver (7/64")	48
(k) TMA4 1/2"	1/4" Dr. Hex Head Driver (9/64")	48
(k) TMA5	1/4" Dr. Hex Head Driver (5/32")	48
(k) TMA6	1/4" Dr. Hex Head Driver (3/16")	48
(k) TMA7	1/4" Dr. Hex Head Driver (7/32")	48
(k) TMA8	1/4" Dr. Hex Head Driver (1/4")	48
(k) TMC104A	1/4" Dr. Standard Driver (3/16" x .032")	48
(k) TMC105A	1/4" Dr. Standard Driver (1/4" x .032")	48
(k) TMC106A	1/4" Dr. Standard Driver (3/8" x .042")	48
(k) TMP12A	1/4" Dr. PHILLIPS® Driver (#1)	48
(k) TMP22A	1/4" Dr. PHILLIPS® Driver (#2)	48
(k) TMP23A	1/4" Dr. PHILLIPS® Driver (#2)	48
(k) TMS4D	1/4" Dr. Speeder Handle	45
(k) TMU81	1/4" Dr. "FLEXOCKET" (std., 12 pt., 1/4")	47
(k) TMU101	1/4" Dr. "FLEXOCKET" (std., 12 pt., 5/16")	47
(k) TMU121	1/4" Dr. "FLEXOCKET" (std., 12 pt., 3/8")	47
(k) TMU141	1/4" Dr. "FLEXOCKET" (std., 12 pt., 7/16")	47
(k) TMU161	1/4" Dr. "FLEXOCKET" (std., 12 pt., 1/2")	47
(k) TMU181	1/4" Dr. "FLEXOCKET" (std., 12 pt., 9/16")	47
(k) TMX140	1/4" Dr. Extension Bar (14")	45
(l) TS121	1/2" Dr. Socket (X-deep, 6 pt., 3/8")	68
(l) TS141	1/2" Dr. Socket (X-deep, 6 pt., 7/16")	68
(l) TS381	1/2" Dr. Socket (X-deep, 6 pt., 1 3/16")	68
(l) TS401	1/2" Dr. Socket (X-deep, 6 pt., 1 1/4")	68
(l) TS421	1/2" Dr. Socket (X-deep, 6 pt., 1 5/16")	68
(l) TS441	1/2" Dr. Socket (X-deep, 6 pt., 1 3/8")	68
(l) TS461	1/2" Dr. Socket (X-deep, 6 pt., 1 7/16")	68
(l) TS481	1/2" Dr. Socket (X-deep, 6 pt., 1 1/2")	68
VP5WRB	WISE GRIP® Wire Cutter (5" long)	152
VP7WR	WISE GRIP® Wire Cutter (10" long)	152
X0610	"BOXOCKET" Wrench Set (10 pcs., 12 pt.)	98
X5609	"BOXOCKET" Wrench Set (9 pcs., 12 pt.)	99
A268	Socket Rail for all "TS" Sockets	21
C141B	Kit Bag for all "OEX" Wrenches	96
C211B	Kit Bag for all Punches and Chisels	157
KRA282	Metal Box for all 1/4" Dr. Tools	43
(j) KTA219	Tray for all "SW" Sockets	21

Set 6 Add-on Group (6100AGS6)

Stock No.	Description	Page
211FDY	3/8" Dr. "WEATHERHEAD" Socket Set (11 pcs.)	57
414AHD	3/4" Dr. "LOXOCKET" Set (14 pcs., std., 12 pt.)	76
(m) AW14	"L" Hex Head Wrench (7/16")	110
(m) AW16	"L" Hex Head Wrench (1/2")	110
(m) AW18	"L" Hex Head Wrench (9/16")	110
(m) AW20	"L" Hex Head Wrench (5/8")	110
(m) AW24	"L" Hex Head Wrench (3/4")	110
CJ1000FSB	Interchangeable Puller Set (62 pcs.)	201
(n) OEX10	Long Combination Wrench (12 pt., 5/16")	96
(n) OEX38	Long Combination Wrench (12 pt., 1 3/16")	96
(n) OEX42	Long Combination Wrench (12 pt., 1 5/16")	96
(n) OEX44	Long Combination Wrench (12 pt., 1 3/8")	96
(n) OEX46	Long Combination Wrench (12 pt., 1 7/16")	96
(n) OEX48	Long Combination Wrench (12 pt., 1 1/2")	96
(n) OEX52	Long Combination Wrench (12 pt., 1 5/8")	101
VS12	Angle-Head Open End Wrench (3/8")	101
VS14	Angle-Head Open End Wrench (7/16")	101
VS16	Angle-Head Open End Wrench (1/2")	101
VS18	Angle-Head Open End Wrench (9/16")	101
VS20	Angle-Head Open End Wrench (5/8")	101
VS22	Angle-Head Open End Wrench (1 1/16")	101
VS24	Angle-Head Open End Wrench (3/4")	101
VS26	Angle-Head Open End Wrench (1 3/16")	101
VS28	Angle-Head Open End Wrench (7/8")	101
VS30	Angle-Head Open End Wrench (1 5/16")	101
VS32	Angle-Head Open End Wrench (1")	101
VS34	Angle-Head Open End Wrench (1 1/16")	101
VS36	Angle-Head Open End Wrench (1 1/8")	101
VS40	Angle-Head Open End Wrench (1 1/4")	101
VS42	Angle-Head Open End Wrench (1 5/16")	101
VS44	Angle-Head Open End Wrench (1 3/8")	101
VS46	Angle-Head Open End Wrench (1 7/16")	101
VS48	Angle-Head Open End Wrench (1 1/2")	101
(o) VO1012	Standard Open End Wrench (5/16" & 3/8")	101
(o) VO1416	Standard Open End Wrench (7/16" & 1/2")	101
(o) VO1820	Standard Open End Wrench (9/16" & 5/8")	101
(o) VO2224	Standard Open End Wrench (1 1/16" & 3/4")	101
(o) VO2628	Standard Open End Wrench (1 3/16" & 7/8")	101
(o) VO3032	Standard Open End Wrench (1 5/16" & 1")	101
(o) VO3234	Standard Open End Wrench (1" & 1 1/16")	101
(o) VO3638	Standard Open End Wrench (1 1/8" & 1 3/16")	101
(o) VO4042	Standard Open End Wrench (1 1/4" & 1 5/8")	98
(p) XB1416	"BOXOCKET" Wrench (std., offset, 12 pt., 7/16" & 1/2")	98
(p) XB1820	"BOXOCKET" Wrench (std., offset, 12 pt., 9/16" & 5/8")	98
(p) XB2024	"BOXOCKET" Wrench (std., offset, 12 pt., 5/8" & 3/4")	98
(p) XB2224	"BOXOCKET" Wrench (std., offset, 12 pt., 1 1/16" & 3/4")	98
(p) XB2628	"BOXOCKET" Wrench (std., offset, 12 pt., 1 3/16" & 7/8")	98
(p) XB3032	"BOXOCKET" Wrench (std., offset, 12 pt., 1 5/16" & 1")	98
(p) XB3440	"BOXOCKET" Wrench (std., offset, 12 pt., 1 1/16" & 1 1/4")	98
(p) XB4446	"BOXOCKET" Wrench (std., offset, 12 pt., 1 3/8" & 1 7/16")	98
(p) XB4852	"BOXOCKET" Wrench (std., offset, 12 pt., 1 1/2" & 1 5/8")	98
C84B	Kit Bag for all "AW" Wrenches	110
C150B	Kit Bag for all "VO" Wrenches	101
C170	Kit Bag for all "XB" "BOXOCKETS"	98
C220	Kit Bag for "OEX" Wrenches	96

FOOTNOTES

(a) added to make	SDX100 Screwdriver Set	138
(b) added to make	120ATMB 1/4" Dr. Set	43
(c) added to make	134TMB 1/4" Dr. Set	42
(d) added to make	316SWY 1/2" Dr. Socket Set	67
(e) added to make	PPC715A Punch and Chisel Set	157
(f) added to make	RB606BK Ratcheting "BOXOCKET" Set	97
(g) added to make	OEX714K Combination Wrench Set	96
(h) added to make	PPC200 AK Punch and Chisel Set	157
(j) added to make	319SWT 1/2" Dr. Socket Set	67
(k) added to make	167TMB 1/4" Dr. Set	42
(l) added to make	319TSY 1/2" Dr. Socket Set	68
(m) added to make	AW1020K "L" Hex Head Wrench Set	110
(n) added to make	OEX722K Combination Wrench Set	96
(o) added to make	VO815K Std. Open End Wrench Set	101
(p) added to make	XB617K "BOXOCKET" Wrench Set	98



A 5077ETB ELECTRONIC SET

5077ETB Set. Contains 1/4" drive and assorted tools in KRA65C Tool Box.

5077ET Set. Tools only.

Stock No.	Description	Page No.
105P	5" Ignition Pliers.....	145
110STMD	1/4" Dr Deep 12 pt Skt Set (3/16" x 9/16").....	46
110TMU	1/4" Dr Std 12 pt Flex Skt Set (3/16" x 9/16").....	47
110TMY	1/4" Dr Std 6 pt Skt Set (3/16" x 9/16").....	46
DS88	1/8" Open End Wrench (15° & 60° offset).....	103
DS1010	5/32" Open End Wrench (15° & 60° offset).....	103
DS1212	3/16" Open End Wrench (15° & 60° offset).....	103
E700	49/16" Wire Loop Pliers.....	146
E701	6 1/2" Needle Nose Pliers.....	146

Stock No.	Description	Page No.
E704	6 3/8" Bent Needle Nose Pliers.....	146
E705	4 1/2" End Flush Cutter Pliers.....	147
E706B	6 1/8" End Flush Cutter Pliers.....	147
E708	4 1/2" Needle Nose Pliers.....	146
E709	4 1/4" Flush Diagonal Cutters.....	147
E710	5 1/16" Flush Diagonal Cutters.....	147
E712	6" Needle Nose Pliers.....	146
GA233	Std Screw Starter (.015" x 5/32").....	142
GA261A	PHILLIPS® Screw Starter.....	142
J805A	Short Open End Wr Set (3/16" x 9/16").....	103
RXH810S	1/4" & 5/16" Flare Nut Wrench.....	102
RXH1214S	3/8" & 7/16" Flare Nut Wrench.....	102
SSD4	Std Screwdriver (.037" x 1/4").....	138
SSD204	Magnetic Tip Sc Dr (.025" x 1/8").....	141
SSDE63	Thin Blade Sc Dr (.028" x 3/16").....	140

Stock No.	Description	Page No.
SSDE66	Very Thin Std Sc Dr (.028" x 3/16").....	140
SSDEP30	PHILLIPS® #0 Screwdriver.....	140
SSDP42	PHILLIPS® #2 Screwdriver.....	139
SSDP319	Thin PHILLIPS® #2 Screwdriver.....	140
SSN5A	Std Screw Starter (.032" x 9/32").....	142
TM4CS	1/4" Dr Long Shank Dr.....	45
TM40AS	1/4" Dr Short Shank Dr.....	45
TM62A	1/4" Dr Flexible Shank Driver.....	45
TM67A	1/4" Dr Ratchet Adaptor.....	44
TM70B	1/4" Dr Std Ratchet.....	44
TMS70	1/4" Dr Ratchet Spinner.....	44
TMU8	1/4" Dr Universal Joint.....	47
TMX2	1/4" Dr Extension Bar (2").....	45
TMX60	1/4" Dr Extension Bar (6").....	45
X1605	Std 12 pt Box Wr Set (7/64" x 1 1/32").....	99

B 5055AGSB MAINTENANCE SET

5055AGSB Set. Contains 3/8" drive and assorted tools in KRA24 Tool Box.

5055AGS Set. Tools only.

Stock No.	Description	Page No.
47	7 1/2" Combination Pliers.....	145
206FUY	3/8" Dr 12 pt Flex Skt Set (3/8" x 3/4").....	56
211FSY	3/8" Dr Std 6 pt Skt Set (1/4" x 7/8").....	55
211SFSY	3/8" Dr Deep 6 pt Skt Set (1/4" x 7/8").....	55
387	7 1/4" Diagonal Cutters.....	148

Stock No.	Description	Page No.
BH91B	8 Oz Soft Tip Hammer.....	154
BP16A	16 Oz Ball Peen Hammer.....	154
D710	10" Adjustable Wrench.....	152
F10LB	3/8" Dr Breaker Bar.....	54
F720	3/8" Dr Std Ratchet.....	52
FU80A	3/8" Dr Universal Joint.....	54
FX2	3/8" Dr Ext Bar (3").....	54
FX6	3/8" Dr Ext Bar (6").....	54
FX11	3/8" Dr Ext Bar (12").....	54
OEX707	Lg Comb Wr Set (3/8" x 3/4").....	96

Stock No.	Description	Page No.
OEXS709	Sht Comb Wr Set (5/16" x 3/4").....	95
PPC3A	Center Punch (1/8" Point).....	156
PPC106A	Pin Punch (3/16" Point).....	156
PPC206A	Starter Punch (3/16" Point).....	156
PPC812A	Flat Chisel (1 3/32" Edge).....	156
PPC824A	Flat Chisel (3/4" Edge).....	156
SSD4	Std Sc Dr (.037" x 1/4").....	138
SSD8	Std Sc Dr (.050" x 3/8").....	138
SSD234	Std Sc Dr (.020" x 1/8").....	140
SSDP42	PHILLIPS® #2 Sc Dr.....	139

C 5080BGSB MAINTENANCE SET

5080BGSB Set. Contains 1/2" drive and assorted tools in KRA25 Tool Box.

5080BGS Set. Tools only.

Stock No.	Description	Page No.
8HR	8" Half Round File.....	172
8R	8" Round File.....	172
9P	8 3/4" Interlocking Joint Pliers.....	149
86	6" Diagonal Cutters.....	148

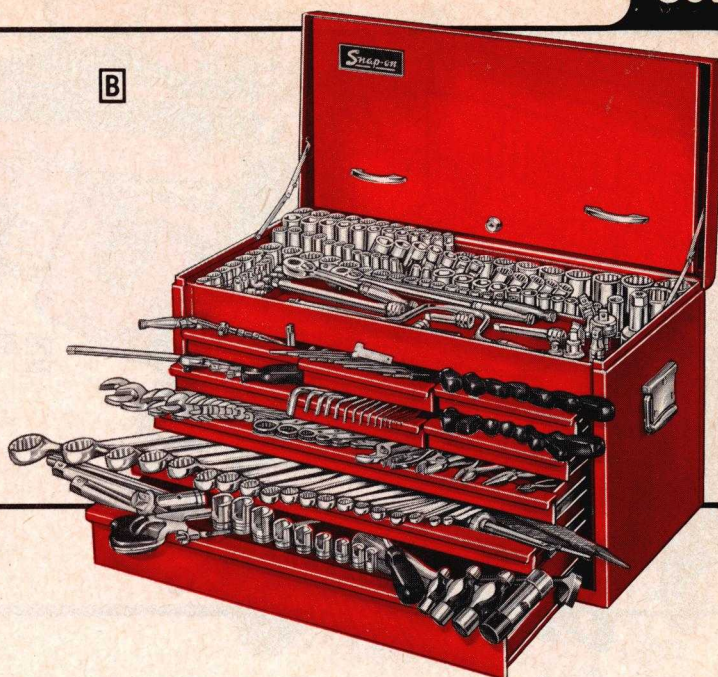
Stock No.	Description	Page No.
137	7 1/2" Combination Pliers.....	145
312SWY	1/2" Dr Std 12 pt Skt Set (7/16" x 1 1/8").....	67
AC58B	Wire Brush.....	212
AW1015AK	"L" Hex Head Wr Set (.028" x 3/8").....	110
BP4A	4 Oz Ball Peen Hammer.....	154
BP16A	16 Oz Ball Peen Hammer.....	154
CS1	Carbon Scraper.....	212
FB326A	Feeler and Ignition Gauge (.003"-.035").....	178
PPC710A	Punch and Chisel Set.....	157
S4	1/2" Dr Speeder Handle.....	66

Stock No.	Description	Page No.
S8	1/2" Dr Universal Joint.....	69
S9705A	1/2" Dr Spark Plug Socket (13/16" 20.6mm).....	239
SL710	1/2" Dr Std Ratchet.....	65
SS9A	Std Screw Starter (.032" x 9/32").....	142
SSDP50	PHILLIPS® Sc Dr Set (#1,2,2.3,4).....	139
SSDS50	Std Screwdriver Set.....	138
SX5	1/2" Dr Extension (5").....	66
SX10	1/2" Dr Extension (10").....	66
V0812	Open End Wr Set (1/4" x 1").....	101
XB608B	Std 12 pt Box Wr Set (3/8" x 1 5/16").....	98

A



B



A 5169GSB SERVICE SET

5169GSB Set. Contains 1/4", 3/8", 1/2" drive and assorted tools in KRA53B Tool Chest.

5169GS Set. Tools only.

Stock No.	Description	Page No.
8HR	8" Half Round File	172
8MA	8" Mill File	172
8R	8" Round File	172
8T	8" Triangular File	172
46	67/16" Combination Pliers	145
87	7 1/4" Heavy Duty Diagonal Cutters	148
90AP	9 1/4" Interlocking Joint Pliers	149
96CP	7 1/8" Needle Nose Pliers	149
114TMP	1/4" Dr Tool Set	43
206AFS	3/8" Dr Std 6pt "FLEXOCKET" Set (7/16"-3/4")	56
211SFSY	3/8" Dr Deep 6pt Socket Set (1/4"-7/8")	55

Stock No.	Description	Page No.
218FSP	3/8" Dr Tool Set	50
316MSP	1/2" Dr Tool Set	64
2011CITK	Ignition Tune-up Kit	238
BH92B	8 Oz Plastic Tip Hammer	154
BP16A	16 Oz Ball Peen Hammer	154
CSA12	Carbon Scraper	212
FB301	Wire Spark Plug Gauge (.001"-.015")	179
FB325A	Feeler Gauge (.0015"-.025")	178
HS8A	10"-12" Blade Hacksaw Frame	170
OEX709	Long 12pt Comb Wr Set (3/8"-7/8")	96
OEXS709	Short 12pt Comb Wr Set (1 1/32"-3/4")	95
PPC710A	Punch and Chisel Set	157
REX10	Bolt/Stud Extractor Set	188
S9704F	3/8" Dr Spark Plug Socket (13/16" 20.64 mm)	239
S9706	3/8" Dr Spark Plug Socket (5/8" 15.88 mm)	239
SDX80	Std and PHILLIPS® Screwdriver Set	138

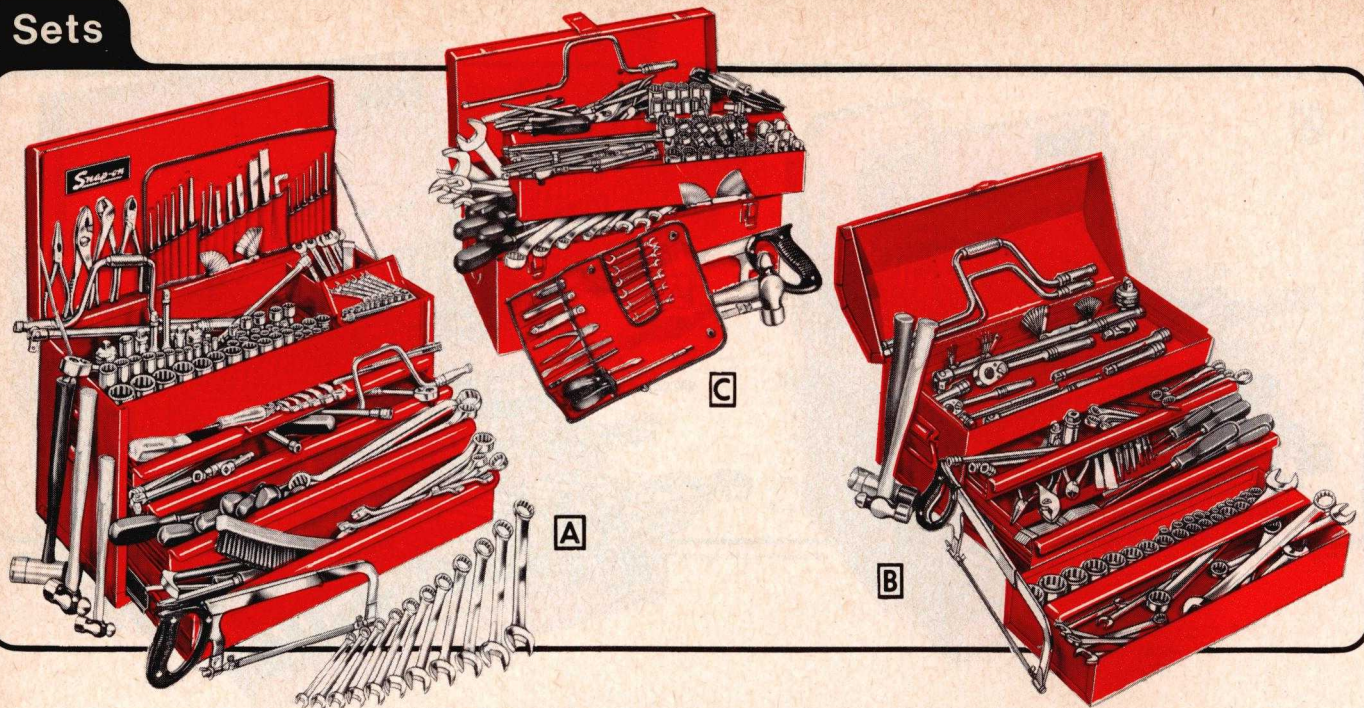
B 5252BGSB SERVICE SET

5252BGSB Set. Contains 3/8", 1/2", 3/4" drive and assorted tools in KRA61D Tool Chest.

5252BGS Set. Tools only.

Stock No.	Description	Page No.
9P	8 3/4" Interlocking Joint Pliers	149
10HR	10" Half Round File	172
10MA	10" Mill File	172
10R	10" Round File	172
10T	10" Triangular File	172
35CP	5" Combination Pliers	145
47	7 1/2" Combination Pliers	145
50C	5" Ignition Pliers	145
87	7 1/2" Diagonal Cutters	148
196	7 1/8" Needle Nose Pliers	149
208CP	Battery Pliers	222
250AF	3/8" Dr Tool Set	50
373M	1/2" Dr Tool Set	64
414AHD	3/4" Dr Tool Set	78
1650	16" Pry Bar	155

Stock No.	Description	Page No.
AW1015AK	Hex Head Wrench Set (.028"-.3/8")	110
BH92B	16 Oz Plastic Tip Hammer	154
BP4A	4 Oz Ball Peen Hammer	154
BP12A	12 Oz Ball Peen Hammer	154
BP32A	32 Oz Ball Peen Hammer	154
HS8A	10"-12" Blade Hacksaw Frame	170
HS13	Jab Saw	170
PPC200AK	Punch and Chisel Set	157
PPM412	3/8" Dr Pipe Plug Wrench	56
PPM516	1/2" Dr Pipe Plug Socket	69
RB606S	Ratcheting 6pt Box Wr Set (1/4"-19/16")	97
SCD30	Cabinet Screwdriver Set (.032" x 1 1/16")	138
SS9A	Std Screw Starter (.032" x 3/32")	142
SSD12A	Std Screwdriver (.060" x 15/32")	138
SSD145	Spark Test Screwdriver	141
SSD234	6 1/4" Short Std Screwdriver (.020" x 1/8")	140
SSDP50	PHILLIPS® Screwdriver Set (#1,2,2.3,4)	139
SSDS50	Standard Screwdriver Set	138
V0815	Open End Wrench Set (1/4"-15/16")	101
XB617	Std 12pt Box Wrench Set (3/8"-15/8")	98



A 5176AGSB SERVICE SET

5176AGSB Set. Contains 1/4", 3/8", 1/2" drive and assorted tools in KRA56C Tool Chest.

5176AGS Set. Tools only.

5176AGSBA Set. Tools in KRA1408 Combination.

5176AGSBB Set. Tools in KRA1837 Combination.

Stock No.	Description	Page No.
47	7 1/2" Combination Pliers	145
50C	5" Ignition Pliers	145

Stock No.	Description	Page No.
87	7 1/2" Diagonal Cutters	148
113ATMPB	1/4" Dr Tool Set	43
196	7 1/8" Needle Nose Pliers	149
208CP	Battery Pliers	222
250AF	3/8" Dr Tool Set	50
325AM	1/2" Dr Tool Set	64
1650	16" Pry Bar	155
AC58B	Wire Brush	212
BH92B	16 Oz Plastic Tip Hammer	154
BP4A	4 Oz Ball Peen Hammer	154
BP12A	12 Oz Ball Peen Hammer	154
CS1	Carbon Scraper	212
DS806	Open End Ignition Set	103
FB301	Wire Sp Plug Gauge (.001"- .015")	179

Stock No.	Description	Page No.
FB326A	Feeler and Ignition Gauge (.003"- .035")	178
HS8A	10"-12" Blade Hacksaw Frame	170
OEX711	Long Comb Wr Set (3/8"-1")	96
PPC200AK	Punch and Chisel Set	157
PT28B	Magnetic Pick-up Tool	187
R1618	12 Pt Ratcheting "BOXCKET" (1/2"-9/16")	97
S9704CFU	3/8" Dr Spark Plug "FLEXOCKET" (13/16")	239
SS5A	Std Screw Starter (.032"x 9/32")	142
SSD145	Spark Test Screwdriver	141
SSDP50	PHILLIPS® Sc Dr Set (# 1,2,2,3,4)	139
SSDS50	Std Screwdriver Set	138
V0809	Open End Wr Set (1/4"-15/16")	101
XB608B	12 Pt Std Box Wr Set (3/8"-15/16")	98
XS609	12 Pt Dwarf Box Wr Set (3/16"-13/16")	99

B 5088AGSB SERVICE SET

5088AGSB Set. Contains 3/8", 1/2" drive and assorted tools in KRA21C Tool Chest.

5088AGS Set. Tools only.

Stock No.	Description	Page No.
47	7 1/2" Combination Pliers	145
87	7 1/2" Diagonal Cutters	148
96	7 1/8" Needle Nose Pliers	149
218FP	3/8" Dr Tool Set	50
325AM	1/2" Dr Tool Set	64

Stock No.	Description	Page No.
BH92B	16 Oz Plastic Tip Hammer	154
BP12A	12 Oz Ball Peen Hammer	154
CS1	Carbon Scraper	212
FB301	Wire Sp Plug Gauge (.001"- .015")	179
HB5	Ignition Point File	241
HS8A	10"-12" Blade Hacksaw Frame	170
OEX711	Long Comb Wr Set (3/8"-1")	96
PPC4A	Center Punch (3/16" point 6" long)	156
PPC104A	Pin Punch (1/8" point, 4 3/4" long)	156
PPC106A	Pin Punch (3/16" point, 5 1/4" long)	156
PPC110A	Pin Punch (3/16" point, 6 1/4" long)	156
PPC204A	Starter Punch (1/8" point, 5 3/4" long)	156

Stock No.	Description	Page No.
PPC206A	Starter Punch (3/16" point, 6 1/4" long)	156
PPC210A	Starter Punch (5/16" point, 7 1/4" long)	156
PPC816A	Flat Chisel (1/2" edge, 6" long)	156
PPC824A	Flat Chisel (3/4" edge, 7 1/4" long)	156
S9704CFU	3/8" Dr Spark Plug "FLEXOCKET" (13/16")	239
SSD2	Std Screwdriver (.032"x 3/16")	138
SSD4	Std Screwdriver (.037"x 1/4")	138
SSD8	Std Screwdriver (.050"x 3/8")	138
SSD145	Spark Test Screwdriver	141
SSDP42	PHILLIPS® Sc Dr (#2)	139
SSDP64	PHILLIPS® Sc Dr (#4)	139
XS609	12 pt Dwarf Box Wr Set (3/16"-13/16")	99

C 5093BGSB SERVICE SET

5093BGSB Set. Contains 3/8" drive and assorted tools in KRA25A Tool Chest.

5093BGS Set. Tools only.

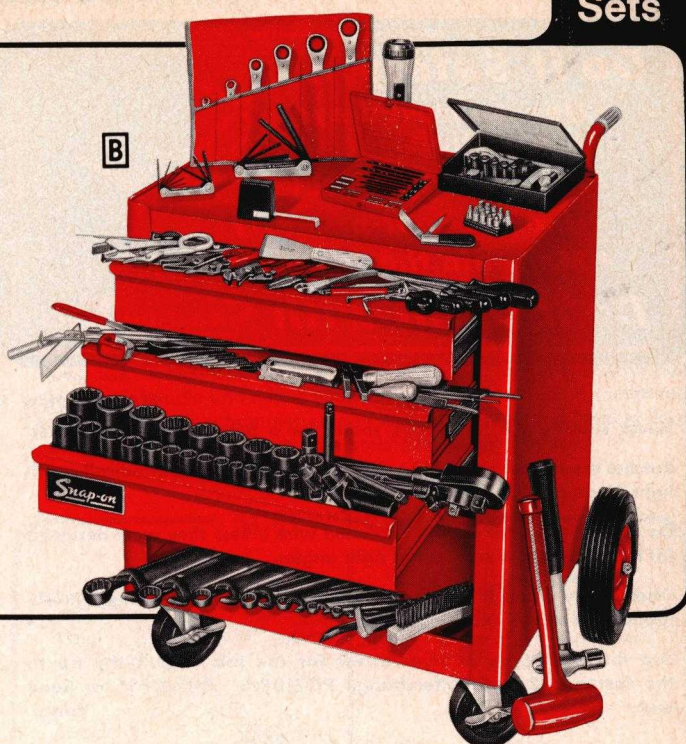
Stock No.	Description	Page No.
47	7 1/2" Combination Pliers	145
87	7 1/2" Diagonal Cutters	148
96	7 1/8" Needle Nose Pliers	149
250AF	3/8" Dr Tool Set	50

Stock No.	Description	Page No.
2011CITK	Tune-up Kit (14 pcs.)	238
BP24A	24 Oz Ball Peen Hammer	154
CT4C	Circuit Tester (2-18 volt)	275
FB326A	Feeler and Ignition Gauge (.003"- .035")	178
HS8A	10"-12" Blade Hacksaw Frame	170
PPC4A	Center Punch (3/16" point 6" long)	156
PPC105A	Pin Punch (3/32" point, 5" long)	156
PPC108A	Pin Punch (1/4" point, 5 3/4" long)	156
PPC205A	Starter Punch (5/32" point, 6" long)	156

Stock No.	Description	Page No.
PPC208A	Starter Punch (1/4" point, 6 3/4" long)	156
PPC812A	Flat Chisel (13/32" edge, 5 1/2" long)	156
PPC820A	Flat Chisel (5/8" edge, 6 1/2" long)	156
SSD1	Std Screwdriver (.037"x 1/4")	138
SSD4	Std Screwdriver (.037"x 3/16")	138
SSD6	Std Screwdriver (.046"x 5/16")	138
SSD8	Std Screwdriver (.050"x 3/8")	138
SSDP42	PHILLIPS® Sc Dr (#2)	139
V0809	Open End Wr Set (1/4"-15/16")	101



A



B

A 5156AGIB INDUSTRIAL SET

5156AGIB Set. Contains 1/4", 3/8", 1/2" drive and assorted tools in KRA56C Tool Chest.

5156AGI Set. Tools only.

Stock No.	Description	Page No.
47CP	7 1/2" Combination Pliers	145
91CP	9 1/4" Interlocking Joint Pliers	149
96CP	7 1/8" Needle Nose Pliers	149
111GTMB	1/4" Dr Tool Set	49
211GSFS	3/8" Dr Deep 6pt Skt Set (1/4"-7/8")	61
218GFB	3/8" Dr Tool Set	60

Stock No.	Description	Page No.
316GSW	1/2" Dr Std 12pt Skt Set (3/8"-15/16")	72
387	7 1/4" Diagonal Cutters	148
1650	16" Pry Bar	155
AW1020K	"L" Hex Head Wrench Set	110
BH92B	16 Oz Plastic Tip Hammer	154
BP8A	8 Oz Ball Peen Hammer	154
BP12A	12 Oz Ball Peen Hammer	154
BP16A	16 Oz Ball Peen Hammer	154
GOEX714	Long Comb Wrench Set (3/8"-1 1/4")	105
GS3A	1/2" Dr Extension (2")	71

Stock No.	Description	Page No.
GS6	1/2" Dr Extension (6")	71
GS12	1/2" Dr Extension (12")	71
GS15B	1/2" Dr Breaker Bar	71
GS71	1/2" Dr Ratchet	71
GU8	1/2" Dr Universal Joint	71
GXB611B	12pt Box Wrench Set (3/8"-1 15/16")	106
KB4	1/2" Dr Speeder	71
OEB815	Open End Wrench Set (1/4"-1 1/4")	106
PPC710A	Punch & Chisel Set	157
SSDS50	Std Screwdriver Set	138

B 5120GIB INDUSTRIAL SET

5120GIB Set. Contains 1/2", 3/4" drive and assorted tools in KRA341C Roll Cab.

5120GI Set. Tools only.

Stock No.	Description	Page No.
030	Offset 5/16" Screwdriver	142
6ASA	6 1/4" Awl	158
8R	8" Round File	172
8T	7 1/2" Triangular File	172
10MA	10" Mill File	172
47CP	7 1/2" Combination Pliers	145
91CP	9 1/4" Interlocking Joint Pliers	149
96CP	7 1/8" Needle Nose Pliers	149
134GTWY	1/2" Dr Std 6pt Skt Set (3/8"-1 1/4")	72
387	7 1/4" Diagonal Cutters	148
1650	16" Pry Bar	155
1658A	16" Pinch Bar	155
ACS8B	Wire Brush	212
AW5K	Bracket Hex Key Set (3/16"-3/8")	111
AW9K	Bracket Hex Key Set (.050"-3/16")	111
BC3A	48 Oz Compothane Hammer	155
BPN16A	16 Oz Ball Peen Hammer	154

Stock No.	Description	Page No.
CD7	7" Tinner's Snips	233
E1020	Extractor Set (1/4"-1/2" Screws)	188
ECF1	Flashlight	176
GA198	Pocket Knife	171
GA228	Comb Screw Starter (PHILLIPS® #3, .032"x 9/32")	142
GA294	Rectangular Mirror (2 1/8"x 3 1/2")	187
GA313	Thread File	185
GA351	Two-Claw Mechanical Finger (14")	175
GA404	Wood File Handle	172
GA406	Wood File Handle	172
GL42	3/4" Dr Extension (5")	78
GL72TH	3/4" Dr Ratchet	78
GL112E	3/4" Dr Breaker Bar Head	78
GLDH322	3/4" Dr Std 12pt Socket (1")	78
GLDH362	3/4" Dr Std 12pt Socket (1 1/8")	78
GLDH402	3/4" Dr Std 12pt Socket (1 1/4")	78
GLDH422	3/4" Dr Std 12pt Socket (1 5/16")	78
GLDH442	3/4" Dr Std 12pt Socket (1 3/8")	78
GLDH462	3/4" Dr Std 12pt Socket (1 7/16")	78
GLDH482	3/4" Dr Std 12pt Socket (1 1/2")	78
GLDH502	3/4" Dr Std 12pt Socket (1 9/16")	78
GLDH522	3/4" Dr Std 12 pt Socket (1 5/8")	78

Stock No.	Description	Page No.
GOEX714	Long Comb Wrench Set (3/8"-1 1/4")	105
GS6	1/2" Dr Extension (6")	71
GS12	1/2" Dr Extension (10")	71
GS15B	1/2" Dr Breaker Bar	71
GS710	1/2" Dr Ratchet	71
GU8	1/2" Dr Universal Joint	71
PIT160	1/2" Dr Impact Driver	69
PK23	Chisel Edge Scraper	212
PPC5	Punch & Chisel Holder	156
PPC710A	Punch & Chisel Set	157
PR12A	Retaining Ring Pliers (Straight Tip)	150
PR34A	Retaining Ring Pliers (Straight Tip)	150
PT30B	27 1/8" Pick-up Tool	187
RB606SK	Ratchet 6pt Box Wr Set (1/4"-13/16")	97
REX10	Bolt/Stud Extractor Set	188
SSDS50	Standard Screwdriver Set	138
ST012B	Offset PHILLIPS® #1/#2 Sc Dr	142
TF528C	Tube Cutting/Flaring Set	153
TF1124A	Thread Restorer	185
TF1127A	Thread Restorer	185
VP10R	10" Vise Grip®	152
YA153	12 Ft Power Tape Measure	180

For Safety Sake...

Do it Safely....

- Use approved eye protection
- Use the right tool
- Use the tool properly
- Maintain the tool regularly



Do it Right with Snap-on Tools

THE SNAP-ON COMMITMENT TO SAFETY

Snap-on Tools Corporation believes that with the knowledge of correct tool use and knowing the limitations of tools — along with some common sense — many accidents can be prevented. Snap-on manufacturing standards have always been geared to produce the finest quality tools to meet rigorous job requirements. Our quality assurance experts demand the best. The safety slogan illustrated at the left is incorporated in sales brochures, catalogs, instruction books, product packaging and decals for tool chests and roll cabs as constant reminders of safe tool use. We believe that by using the correct tool properly you will get the job done easier and safer. Safe tool use is everyone's job.

HAND TOOL SAFETY RULES

- Never substitute a hand type socket for a power or impact socket.
- Ratchet mechanisms should be cleaned and lubricated periodically with light grade oil. Replace worn parts.
- Do not use pliers for cutting hardened wire unless they were designed for that purpose. Always cut at right angles.
- Discard any chisel if it is bent or shows dents, cracks, chips, mushrooming or shows excessive wear.
- Use the right type of screwdriver for the job. Match the tip to the fastener. Do not interchange POZIDRIV®, PHILLIPS® or Reed and Prince.
- Use a wrench or socket whose opening fits the nut. Never cock an open-end wrench.
- If possible, always pull on a wrench handle and adjust your stance to prevent a fall if something lets go.
- Do not use pipe or other improvised leverage extensions on handles.
- Plastic dipped handles are for comfort only. They are not intended to act as insulation.
- Never use a pipe wrench to bend, raise or lift a pipe.
- Use the correct drive size handles and attachments with handles.

SAFETY ACCESSORIES



A GAC1495 Protective Eyeshields. Will fit over prescription glasses or can be worn alone. Wrap around side shields, impact resistant, antiglare guard.

B YA132 Safety Glasses. Wear when using hammers, grinders, punches, chisels and impact tools. Meets Specs. No. ANSI Z87.1.

C GAC1575 Safety Goggles. Plastic lenses conform to American National Safety Standards and OSHA requirements for strength and piercing. The soft, form fitting plastic frame is vented. Meets Specs. No. ANSI Z87.1.

D GAC5002A Welding Goggles. Built in side shield for maximum ventilation. Adjustable nose piece is made of sturdy ball chain encased in soft vinyl tubing. Hardened 50 mm filter glass lens. *For acetylene welding only.* Meets Specs. No. ANSI Z87.1.

E GAE56A Welding Goggles. Features lift-front visor... opens and closes at the touch of a finger. Flips from welding or burning operation to grinding, chipping or inspection. Fits over prescription glasses and accommodates magnifying plate. Ventilated for comfort. Meets Specs. No. ANSI Z87.1. *For acetylene welding only.*

F GAC1100 Welding Goggles. Soft vinyl mask fits comfortably around eyes and nose. Fits over prescription glasses and accommodates magnifier plate. Provided with hardened 2" x 4 1/4" plate shade 3 to 8. Meets Specs. No. ANSI Z87.1. *For acetylene welding only.*

G YA127 Paint Spray Respirator. Helps filter spray mist from the air and an organic vapor respirator which helps reduce vapors such as lacquer gasses. Vapor cartridge and paint pre-filter pads are included and also replaceable.

H YA126A Ear Protectors. Provides hearing protection and comfort for the user. Features 360° rotating head band, specially contoured non-directional earcup design. Both headband and earcup feature cushions for wearing comfort. Meets Specs. No. ANSI S3.19-1974. NRR Factor = 27.1.

J GA224 Face Shield. Consists of spark guard, adjustable head piece and visor. Room for prescription glasses. 8" x 12" x .040" visor. Cushion head piece.

Use Your Tools Properly

RATCHETS



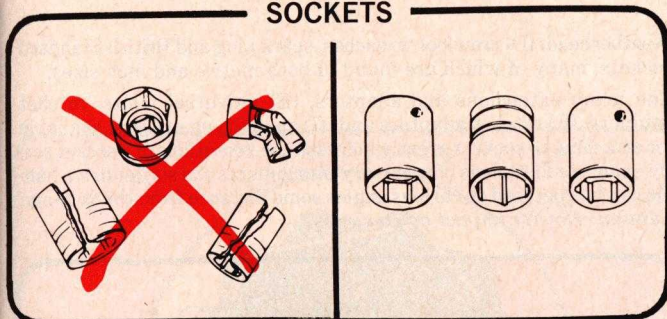
- Never hammer or put a pipe extension on the handle of a ratchet for added leverage.
- Always support the ratchet head when using socket extensions.
- When breaking loose a fastener, apply a small amount of pressure as a test to be sure gear wheel is engaged with the pawl.

WRENCHES



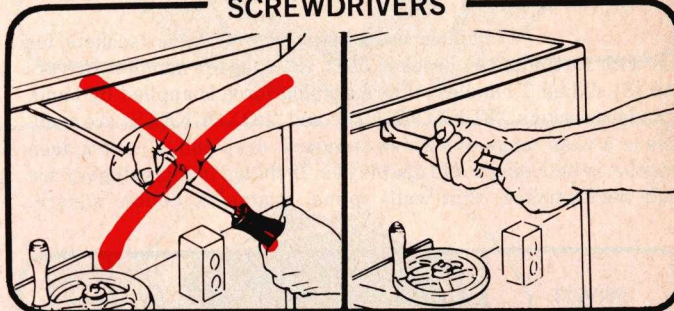
- Never use an extension on a wrench handle.
- If possible, always pull on a wrench handle and adjust your stance to prevent a fall if something lets go.
- Never use a hammer on any wrench other than a Striking Face wrench.
- Discard any wrench with broken or battered points.

SOCKETS



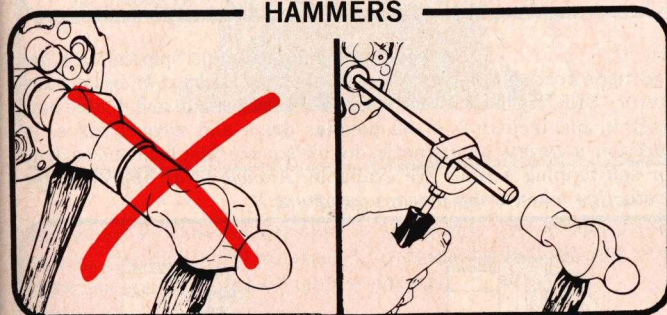
- Never use hand sockets on power or impact wrenches.
- Select the right size socket for the job.
- Select only heavy-duty impact sockets for use with air or electric impact wrenches.
- Replace sockets showing cracks or wear.
- Keep sockets clean.

SCREWDRIVERS



- Don't use a screwdriver for prying, punching, chiseling, scoring or scraping.
- Don't use a screwdriver with rounded edges as it will slip... redress with a file.
- Don't use a screwdriver near a live wire or for electrical testing.

HAMMERS



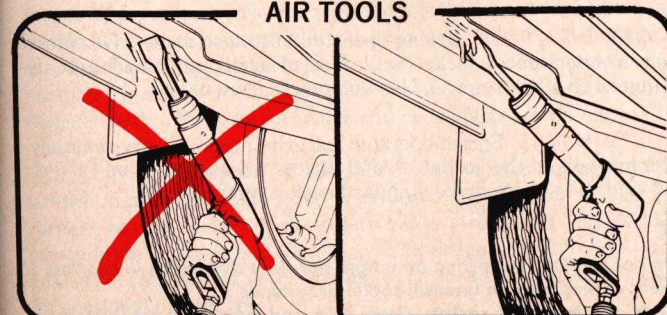
- Never strike one hammer against a hardened object such as another hammer.
- Always grasp a hammer handle firmly, close to the end.
- Strike the object with the full face of the hammer.
- Never work with a hammer having a loose head.
- Discard hammer when face chips or mushrooms.
- Wear approved eye protection when using percussion tools.

PUNCHES/CHISELS



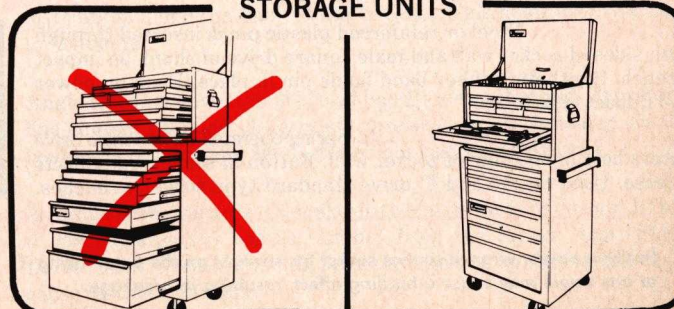
- Never use a punch or chisel with a chipped or mushroomed end.
- Hold a chisel or punch with a tool holder if possible.
- When using a chisel on a small piece, clamp the piece firmly in a vise and chip toward the stationary jaw.
- Wear approved eye protection when using percussion tools.

AIR TOOLS



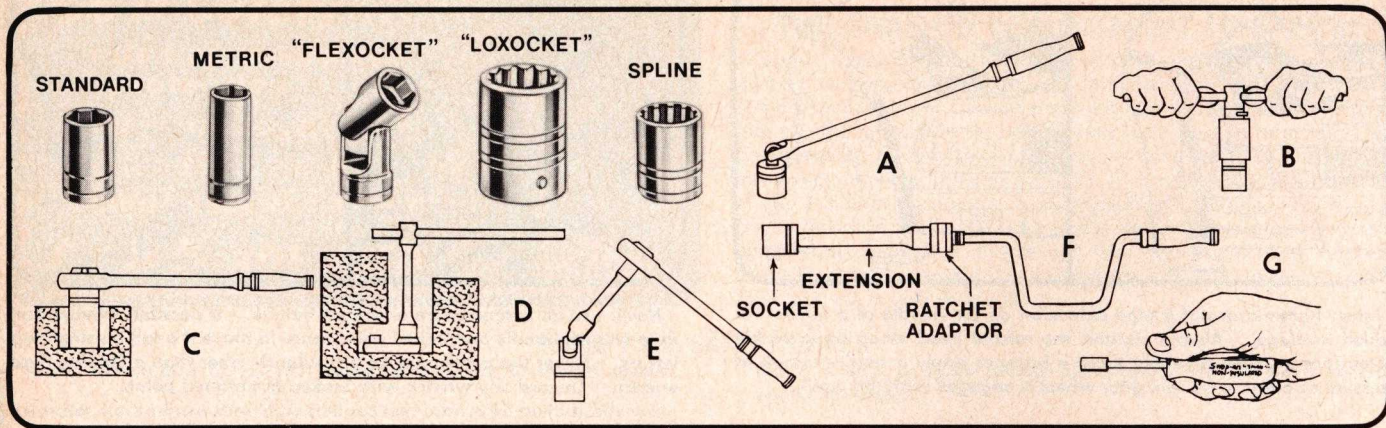
- Always wear approved eye protection equipment when performing any task using air operated tools.
- Bits should always be against work surface before air hammer is operated.
- Disconnect the air supply line to the hammer before attaching or changing bits.

STORAGE UNITS



- Do not open too many loaded drawers at a time; close each drawer before opening up another.
- Don't pull on a tool cabinet; push it in front of you.
- Set the brakes on the locking casters after you have rolled the cabinet to your work.
- Close lid before moving.

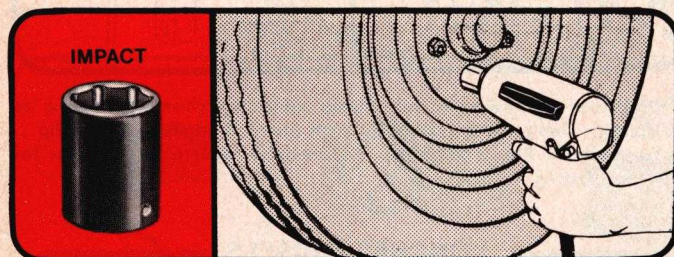
Socket Styles, Uses and Care



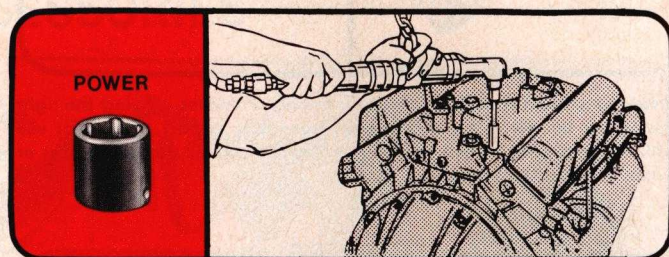
HAND SOCKETS. Thinner walls than power or impact sockets, for use with ratchets, (A) breaker bars, (F) speeder handles, drivers and (B) sliding T-handles, where turning force is applied by hand. Standard sockets, "FLEXOCKETS" and "LOXOCKETS" are available in a wide range of sizes in standard, deep and (C) extra deep lengths, in both single and double hex. Included in this category are high performance, thin wall, spline, magnetic, double square,

Weatherhead, (D) crowfoot wrenches, spark plug and British Standard sockets, many of which are found in both metric and inch-sizes.

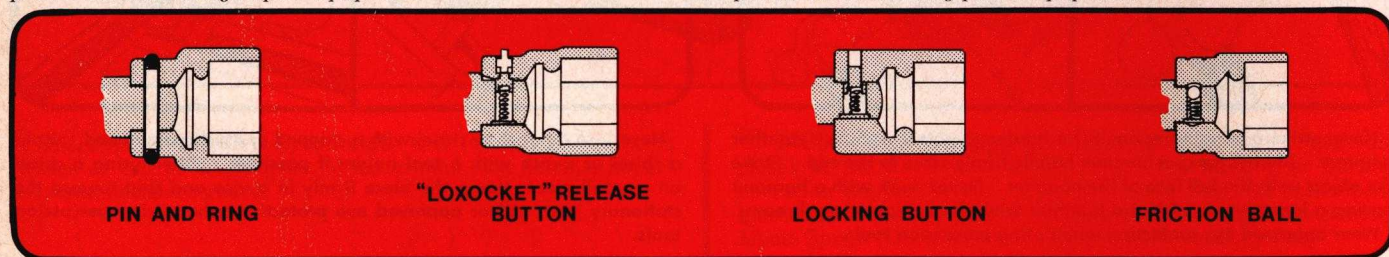
The many extensions and adaptors, (E) universal joints, ratchet spinners, (F) ratchet adaptors and (G) shank-type drivers, available for attaching to sockets greatly increase the versatility of a socket set. By using combinations of accessory attachments the socket drive handle can be operated at various angles some distance from the fastener. *Caution: Not for impact or power use.*



IMPACT SOCKETS. Thicker walls for use with impact wrenches (illustrated). Standard impact sockets and impact "FLEXOCKETS" are available in all popular drive and wrench sizes (metric and inch-size) in standard, deep and extra deep lengths, in both single and double hex. In addition to these are a variety of heavy duty, double square and #5 spline drive units. *Always wear approved eye protection when using impact equipment.*



POWER SOCKETS. For power nut runners, multi-spindle machines and angle head nut drivers (illustrated). Standard power sockets and power "FLEXOCKETS" are available in both single and double hex, (metric and inch-size) in all popular drive and wrench sizes. In addition, a variety of magnetic, double square, fast lead and sockets for self-tapping screws are available. *Always wear approved eye protection when using power equipment.*



LOCKING DEVICES

PIN AND RING. Steel or reinforced plastic pin is inserted through both sides of socket wall and male square drive of shank on impact wrench. Synthetic rubber band holds pin in place. Used on power and impact type units.

"LOXOCKET" RELEASE BUTTON. Spring-operated button male drive enters hole in one side of socket wall. Button in socket wall effects release. Used on $\frac{3}{4}$ " and 1" drive standard type socket wrenches.

LOCKING BUTTON. Spring-operated button on male drive enters hole in one side of socket wall. Use of small rod, punch, etc. is required to effect release. Used on power type units.

FRICTION BALL. Spring-operated ball grips machined grooves in any of four walls of the socket. A pull effects release. Used on $\frac{1}{8}$ ", $\frac{1}{4}$ ", $\frac{3}{8}$ " and $\frac{1}{2}$ " square drive standard socket wrench units.

SAFETY and MAINTENANCE TIPS

- Position power wrench so that socket fits straight on the nut. Placing it at any angle may cause a binding effect, resulting in breakage.
- Use the right size socket and replace worn or undersize nuts. Sockets used on such nuts will receive excessive wear and become subject to breakage.
- Do not continue impacting on a tight nut since this results in needless wear or breakage on wrench, socket or fastener.
- Keep the inside of sockets clean. Dirt and grease in a socket can cause breakage.
- When a power wrench drive end becomes worn, replace it with a new one. Loose play in a worn drive end causes excess wear in socket drive opening.

FLANK DRIVE... Stronger for Greater Torque

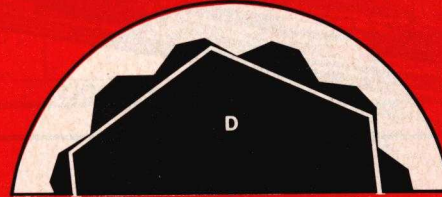
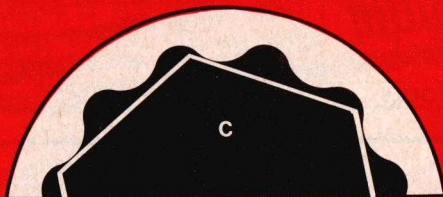
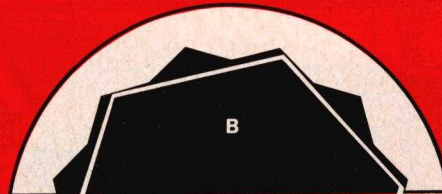
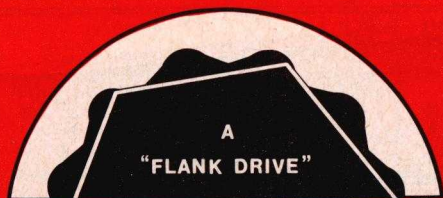
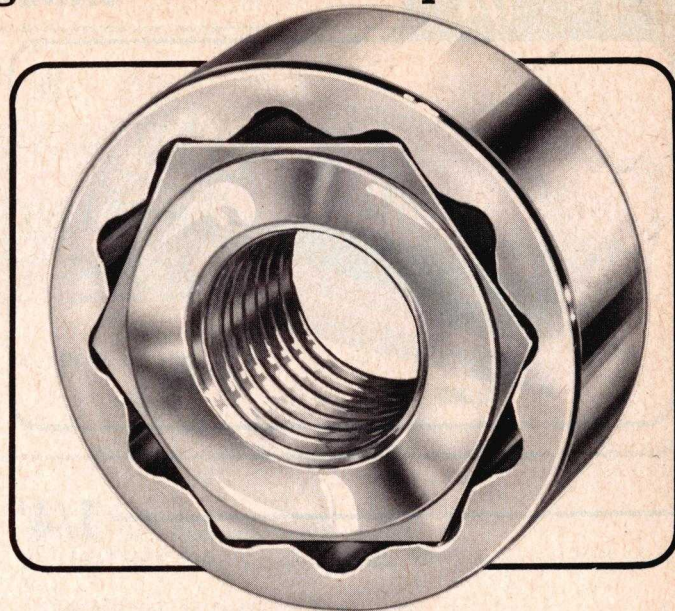
Pictured below are four broach designs illustrating their differences. Only **Snap-on** "Flank Drive" broaching assures you of longer tool life, speeds repair jobs and protects nut and bolt heads by helping to prevent rounding of corners. **Snap-on** sockets with "Flank Drive" configuration are 5 to 10 percent stronger than comparable sockets with ordinary broaching and provide a fifteen to twenty percent increase in application pressure without damage to the fastener.

Snap-on "Flank Drive" is now incorporated into single and double hexagon sockets, "FLEXOCKETS" and "LOXOCKETS" as well as many other special-use sockets and wrenches which are 2" or less in wrench size. These tools are ideal for those jobs requiring unusually high torque or tightening in addition to regular nut turning jobs.

U.S. PAT. NO. 3,273,430

BRITISH PAT. NO. 1,138,546

CANADIAN PAT. NO. 781,703



TORQUE-ABILITY... With **Snap-on** "Flank Drive," contact is maintained as close as possible to the corner yet avoids corner contact. This flat-to-flat surface (A) contact allows increased pressure to be applied without fastener damage.

Conventional broaching (B) concentrates contact pressure on the corners of the fastener. Increased application of torque can cause "rounding" of the fastener's corners.

Other tool manufacturer's broach design, results in the fastener contacting farther from the corner than "Flank Drive" does (C). This means that greater pressure must be exerted to achieve the same torque. The extra pressure plus line contact could cause damage to the fastener. Still another broach design (D) eliminates corner contact. However, its design still concentrates pressure on the fastener with a line contact which can cause fastener damage.

STRENGTH... **Snap-on** "Flank Drive" design adds strength to the wrench and, at the same time, provides corner clearance (A). The corners have a radius that redistributes stress and reduces the possibility of breakage in high-torque situations. Socket wall thickness is not reduced since the radius to the corners is the same as the conventional broach (B).

With conventional broaching (B) stress caused by turning a fastener is concentrated in the corners of the wrench. This stress can cause the wrench to break in one or more of the corners as higher torque readings are attempted.

Both the inner and outer corners of broach design (C) have a radius. The radius on the inner corner reduces the amount of engagement available and can lead to "reaming" of the wrench.

The corners of broach design (D) do not have a radius. Stress is focused on the outer corners where the wrench can break when pressure is applied to the fastener to achieve high-torque values.

FASTENER LIFE... The angle faces in a **Snap-on** "Flank Drive" broach have been changed 3° from conventional (B) to achieve an almost "flat-to-flat" surface contact. Thus, stress is more evenly distributed along the flank of the fastener. This helps avoid damage to fasteners.

Angle faces in conventional broaching (B) are unchanged. Therefore, line contact remains. As a result, pressure is concentrated on the fastener's corners and the fastener can easily be distorted.

A radius in the corners (C) replaces the angle faces in design (B) but it concentrates line contact farther from the corner than "Flank Drive" does. Greater turning pressure must be applied which could cause fastener damage.

Angle faces in broach (D) have been altered dramatically to insure contact away from the corner but this still forms a line contact with the fastener. Such contact concentrates pressure and can deform fasteners.

1/8" - 1/4"

CHROME SETS



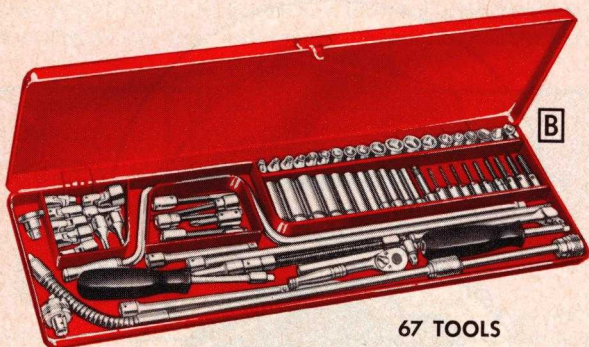
A

A 1605T 1/8" Sq. Dr. Set. Includes four sockets ranging in size from 3/32" to 3/16" and a driver with a screwdriver type handle. Ideal for industries dealing with miniaturization such as electronics and communications. Set is packaged in a plastic tray.

SPECIFICATIONS

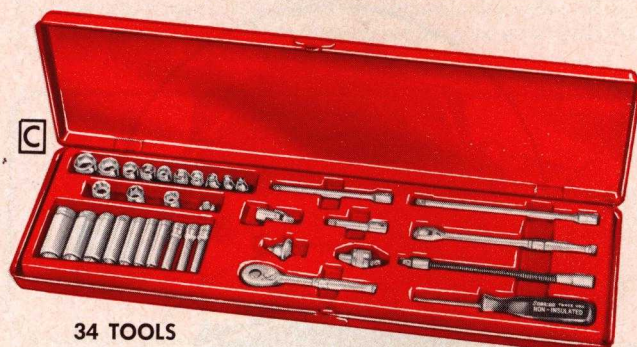
Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		Overall Length
			Socket End	Handle End	
3/32"	T6	19/64"	5/32"	1/4"	1/2"
1/8"	T8	19/64"	7/32"	1/4"	1/2"
5/32"	T10	19/64"	1/4"	1/4"	1/2"
3/16"	T12	19/64"	5/16"	9/32"	1/2"
Driver	T40	Shank Length 1 9/16" — Overall Length 4 1/16"			

1/4" DRIVE



B

67 TOOLS



C

34 TOOLS

B 167TMB Complete Set. 67 tools in KRA282 Metal Box. 167TM Set. Tools only.

C 134TMPB Utility Set. 34 tools in plastic tray, inside KRA284 Metal Box.

134TMP Set. Tools only in plastic tray.

134TMB Set. Above tools in compact KRA275 Metal Box.

Stock No.	Description	167TM Set	134TMP Set
110STM	1/4" Dr Deep 6 Pt. Skt. Set (3/16"-9/16")	X	X
110TM	1/4" Dr Std. 6 Pt. Skt. Set (3/16"-9/16")	X	X
TM04	1/8" 6 Pt. Std. Socket	X	...
TM05	5/32" 6 Pt. Std. Socket	X	...
TM4CS	Long Shank Driver	X	X
TM5	Sliding T-Handle	X	...
TM10F	Breaker Bar	X	X
TM27	1 1/64" Clutch Head Driver	X	...
TM30	15/64" Clutch Head Driver	X	...
TM31	5/32" Clutch Head Driver	X	...
TM61A	6" Flexextension	X	X
TM62A	Flexible Driver	X	...
TM65	Flexible Adjusting Wrench	X	...
TM67A	Ratchet Adaptor	X	X
TM70B	Ratchet	X	X
TM82	1/4" x .032" Screwdriver	X	X
TM83A	1/32" x 23/64" Driver Blade	X	...
TM84	1/32" x 7/16" Driver Blade	X	...
TM408	1/4" Double Square Socket	X	X
TM410	5/16" Double Square Socket	X	X
TM412	3/8" Double Square Socket	X	X
TMA2 1/2	5/64" Hex Head Driver	X	...
TMA3	3/32" Hex Head Driver	X	...
TMA3 1/2	7/64" Hex Head Driver	X	...

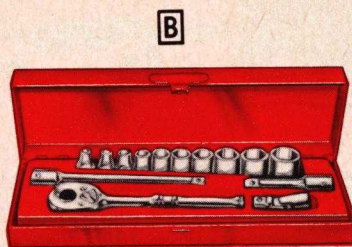
Stock No.	Description	167TM Set	134TMP Set
TMA4	1/8" Hex Head Driver	X	...
TMA4 1/2	9/64" Hex Head Driver	X	...
TMA5	5/32" Hex Head Driver	X	...
TMA6	3/16" Hex Head Driver	X	...
TMA7	7/32" Hex Head Driver	X	...
TMA8	1/4" Hex Head Driver	X	...
TMC104A	3/16" x .032" Std. Screw Driver	X	...
TMC105A	1/4" x .032" Std. Screw Driver	X	...
TMC106A	3/8" x .042" Std. Screw Driver	X	...
TMP12A	No. 1 PHILLIPS® Driver	X	...
TMP22A	No. 2 PHILLIPS® Driver	X	...
TMP23A	No. 2 PHILLIPS® Long Driver	X	...
TMS4D	Speeder Handle	X	...
TMS70	Ratchet Spinner	X	X
TMU8	Universal Joint	X	X
TMU81	1/4" 12 Pt. "FLEXOCKET"	X	...
TMU101	5/16" 12 Pt. "FLEXOCKET"	X	...
TMU121	3/8" 12 Pt. "FLEXOCKET"	X	...
TMU141	7/16" 12 Pt. "FLEXOCKET"	X	...
TMU161	1/2" 12 Pt. "FLEXOCKET"	X	...
TMU181	9/16" 12 Pt. "FLEXOCKET"	X	...
TMX2	2" Extension	X	X
TMX4	4" Extension	X	X
TMX60	6" Extension	X	X
TMX140	14" Extension	X	...

CHROME SETS

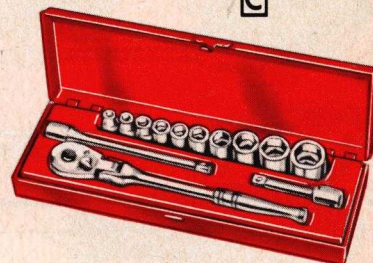
1/4"



20 TOOLS



14 TOOLS



13 TOOLS

A 120ATMPB Standard Set. 20 tools in plastic tray, inside KRA252 Metal Box.

120ATMP Set. Tools only in plastic tray.

120ATMB Set. Above tools in compact KRA255 Metal Box.

B 114TMPB Set. 14 tools in plastic tray, inside KRA229

Metal Box.

114TMP Set. Tools only in plastic tray.

C 113ATMPB Set. 13 tools in plastic tray, inside KRA229 Metal Box.

113ATMP Set. Tools only in plastic tray.

Stock No.	Description	120A TMP Set	114 TMP Set	113A TMP Set
TM4A	Long Shank Driver.....	X	...	...
TM6	3/16" 6 Pt. Std. Socket.....	X	X	X
TM7	7/32" 6 Pt. Std. Socket.....	X	X	X
TM8	1/4" 6 Pt. Std. Socket.....	X	X	X
TM9	9/32" 6 Pt. Std. Socket.....	X	X	X
TM10	5/16" 6 Pt. Std. Socket.....	X	X	X
TM10F	Breaker Bar.....	X	...	...
TM11	11/32" 6 Pt. Std. Socket.....	X	X	X
TM12	3/8" 6 Pt. Std. Socket.....	X	X	X
TM14	7/16" 6 Pt. Std. Socket.....	X	X	X
TM16	1/2" 6 Pt. Std. Socket.....	X	X	X

Stock No.	Description	120A TMP Set	114 TMP Set	113A TMP Set
TM18	9/16" 6 Pt. Std. Socket.....	X	X	X
TM70B	Ratchet.....	X	X	...
TM408	1/4" Double Square Socket.....	X	...	...
TM410	5/16" Double Square Socket.....	X	...	...
TM412	3/8" Double Square Socket.....	X	...	...
TM711	Flexhead Ratchet.....	...	...	X
TMU8	Universal Joint.....	X	X	...
TMX2	2" Extension.....	X	X	X
TMX4	4" Extension.....	X	X	X
TMX60	6" Extension.....	X	...	...

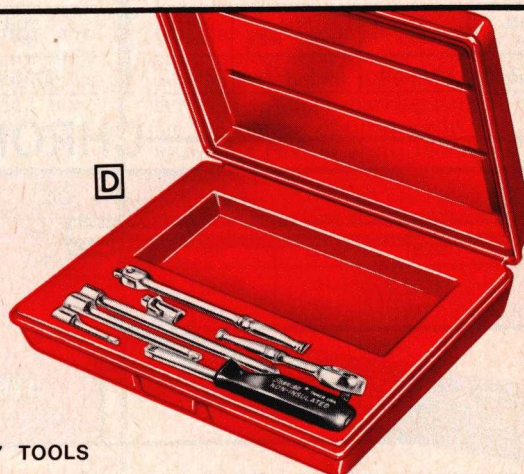


SUGGESTED
OPTIONAL SETS



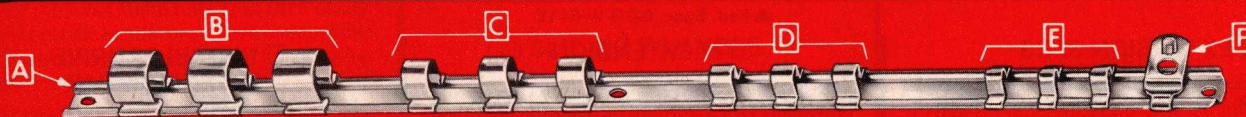
DESIGN YOUR OWN 1/4" DRIVE SET!

D 107TMP Set. Includes the TM70B Ratchet, TM4CS Long Driver, TMU8 Universal Joint, TM10F Breaker Bar, TMX2 2" Extension Bar, TMX4 4" Extension Bar and TMX60 6" Extension Bar in PB24 Plastic Case. A large cavity in the PB24 allows you to add any of the following suggested sets: 110TMY Set (p. 46), 110TMDY Set (p. 46), 110STMY Set (p. 46), 110STMDY Set (p. 46), 108TMUSY Set (p. 47) and 110TMUY Set (p. 47).



7 TOOLS

SOCKET MOUNTING ACCESSORIES



A SOCKET RAILS

A265 7 3/8" long.

A269 10 3/8" long.

A267 13 3/8" long.

A270 16 3/4" long.

A266 23 3/8" long.

A268 31 1/2" long.

SOCKET CLIPS

The following come in packages of 25.

B A274C For 3/4" drive sockets.

C A273A For 1/2" drive sockets.

D A272A For 3/8" drive sockets.

E A271A For 1/4" drive sockets.

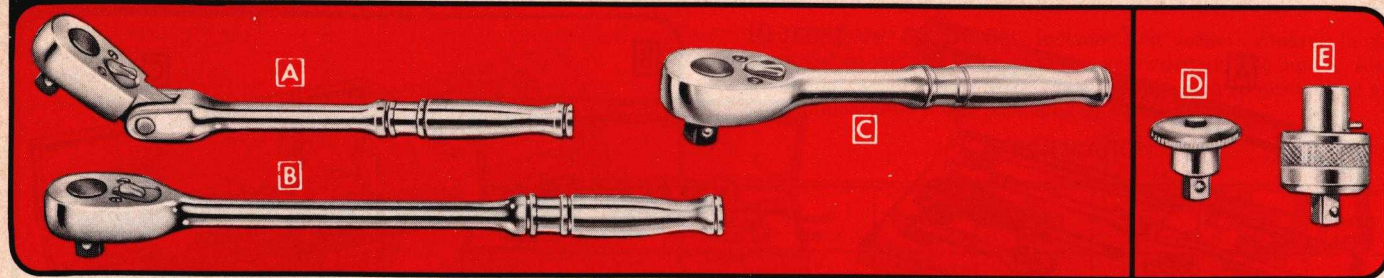
RAIL HOLD-DOWN CLIPS

F A264A (10) Mounts securely to drawer, tote tray or wall cabinet, snapping open or closed to release socket rail for tool portability.

Metric 1/4" drive on pages 112 and 113.

1/4"

CHROME RATCHETS



Snap-on RATCHET FEATURES

- **CHROME FINISH**... helps prevent rust and maintain a professional appearance.
- **HIGH GRADE ALLOY STEEL**... specially heat treated for strength and wear resistance.

- **HEAD DESIGN**... specially designed to fit into tight areas.
- **REVERSE LEVER**... provides simple one finger operation. Recessed to minimize accidentally reversing while in use.

- **DUST COVER**... carefully engineered to protect the ratcheting mechanism from contaminants, extending tool life.
- **HANDLES**... shaped and tapered to fit the hand for firm steady control and use.

A FLEX-HEAD RATCHET

Provides angle flexibility for servicing hard-to-reach fasteners. The ratchet head, held in a semi-flex position under spring tension, swings to the required working position.

Stock No.	Gear Action	Depth	Head Width	Overall Length
TM711	20 Tooth	3/8"	27/32"	5 53/64"

B LONG HANDLE RATCHET

Provides extra leverage. 20-tooth gear action permits working in an 18° arc. Reversible action.

Stock No.	Gear Action	Depth	Head Width	Overall Length
TML70A	20 Tooth	3/8"	27/32"	6 1/2"

▲ Fed. Spec. GGG-W-641E

C STANDARD RATCHETS

Available with either a coarse or fine ratcheting gear mechanism. Reversible action.

Stock No.	Gear Action	Depth	Head Width	Overall Length
▲TM70B	20 Tooth	3/8"	27/32"	4 27/64"
▲TM75	30 Tooth	3/8"	27/32"	5 27/64"

D RATCHET SPINNER

Attaches to the square drive between the socket and the ratchet. Finger tip turn allows you to spin the fastener to achieve ratcheting tension. Milled edge provides good grip.

Stock No.	Diameter of Milled Plate	Overall Length
TMS70	31/32"	27/32"

E RATCHET ADAPTOR

Reversible ratchet, 20-tooth gear action with new bite every 18°. Knurling provides a good grip.

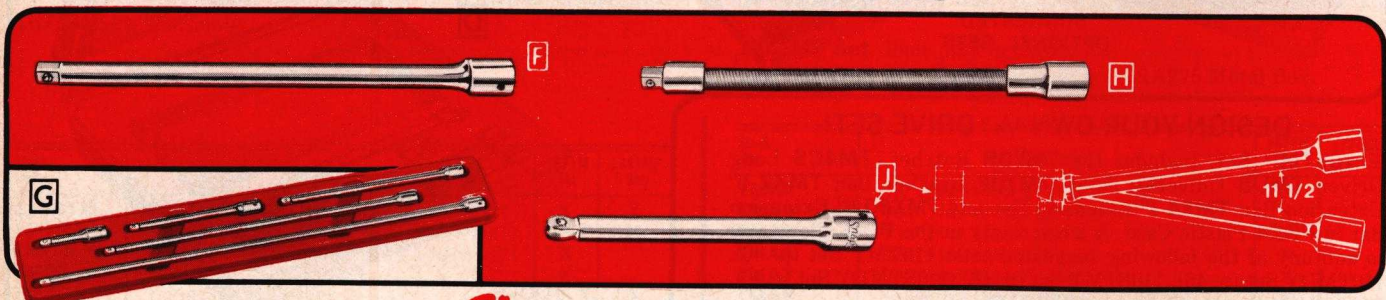
Stock No.	Outside Diameter	Overall Length
▲TM67A	15/16"	1 3/8"

CAUTION: Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance. Worn parts should be replaced with contents of repair kit. Parts should not be replaced individually.

RATCHET REPAIR KITS

RKRTM75 Kit. For TM75 Ratchet.
RKRR930 Kit. For TM70B, TML70A and TM711 Ratchets.

CHROME EXTENSIONS



Snap-on EXTENSION FEATURES

- **CHROME FINISH**... helps prevent rust and maintain a professional appearance.

- **VARIETY OF LENGTHS**... provides all the reach needed to reach inaccessible nuts.

- **HIGH GRADE ALLOY STEEL**... specially heat treated for strength.

▲ Fed. Spec. GGG-W-641E

F EXTENSION BARS

Stock No.	Shank Diameter	Overall Length
▲TMX2	5/16"	2"
TMX4	5/16"	4"
▲TMX60	5/16"	6"
TMX100	5/16"	10"
TMX140	5/16"	14"

ⓐ 105TMX Set. Includes all Extensions above in a plastic tray.

H FLEXTENSION

Not designed for final tightening or initial loosening. Provides easy access to hard-to-reach fasteners where a solid handle or extension bar cannot be used.

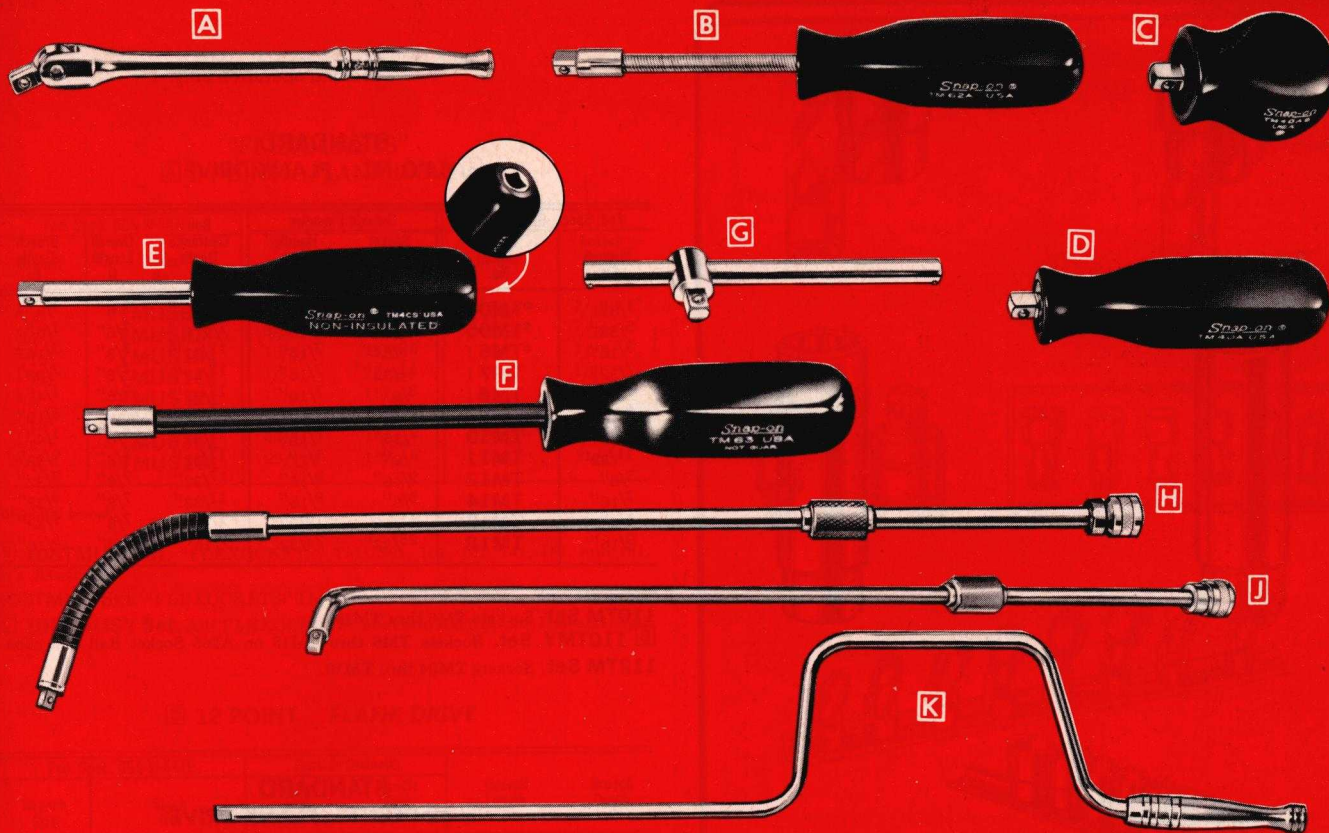
Stock No.	Cable Diameter	Cable Length	Overall Length
▲TM61A	5/16"	5"	6"

Metric 3/4" drive on pages 112 and 113.

J "WOBBLE" DRIVE EXTENSION BAR

Provides 11 1/2° angle flexibility for turning fasteners when clearance is a problem.

Stock No.	Shank Diameter	Overall Length
TMXW4	5/16"	4"



CAUTION: Handles on B, C, D, E and F do not provide electrical insulation.

A BREAKER BAR

Head swivels to any position. Inner spring holds head in a semi-flex position. Handle provides ample leverage to loosen or tighten stubborn fasteners.

Stock No.	Handle Diameter	Head Width	Overall Length
▲TM10F	5/16"	7/16"	6"

B FLEXIBLE DRIVER

Flexible steel cable is designed to service hard to reach fasteners. Rounded plastic screwdriver type handle provides a firm comfortable grip.

Stock No.	Cable Diameter	Cable Length	Overall Length
▲TM62A	1/4"	43/4"	63/4"

SHORT SHANK DRIVERS

Drive end projects 3/8" for socket attachment. Quickly removes small nuts that turn easily. Rounded plastic handle provides a comfortable grip. Stubby handle model ideal for working in restricted area.

■ **TM40AS** Stubby Handle Model

■ **TM40A** Standard Handle Model

Stock No.	Handle Length	Overall Length
TM40AS	13/4"	21/8"
TM40A	33/4"	41/8"

▲ Fed. Specs. GGG-W-641E

E LONG SHANK DRIVERS

Standard model for routine turning jobs. For added reach the TM4CS is equipped with a 1/4" female square drive in the handle for use with an extension bar. TM4A same as TM4CS, but without female square drive.

Stock No.	Shank Diameter	Shank Length	Overall Length
▲TM4CS	5/16"	2"	53/4"
▲TM4A	5/16"	2"	53/4"

F FLEX DRIVER

CAUTION: For hand use only.

Designed to service hard to get at fasteners. Flexible steel shaft has a plastic cover.

Stock No.	Shank Diameter	Shank Length	Overall Length
TM63	1/4"	57/16"	93/16"

G SLIDING T-HANDLE

Designed for heavier duty applications. Can be used as a "T" Handle, exerting equal leverage or as an off-set wrench. Sliding head can be used at any position on handle.

Stock No.	Head Depth	Handle Diameter	Handle Length
▲TM5	13/16"	5/16"	41/2"

Metric 3/4" drive on pages 112 and 113.

ADJUSTING WRENCHES

Ideal for carburetor idle adjustment. Also services older style window type distributors with ignition points. Knurled knob for ease in turning. A knob marking permits counting the number of turns made. The TM65 features a flexible shaft; the TM64 has a fixed shaft.

Stock No.	Shaft Length	Cable Length	Overall Length
H TM65	141/4"	51/2"	193/4"
J TM64	16"	5"	181/4"

K SPEEDER

Provides fast, efficient nut turning where space permits a wide handle swing. Designed to provide a long reach.

Stock No.	Shank Diameter	Shank Length	Sweep Radius	Overall Length
TMS4D	5/16"	9"	3"	1729/32"

1/4"

CHROME SOCKETS



A



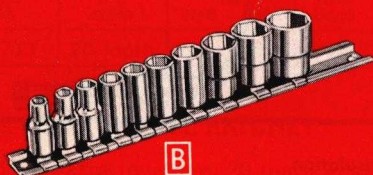
C



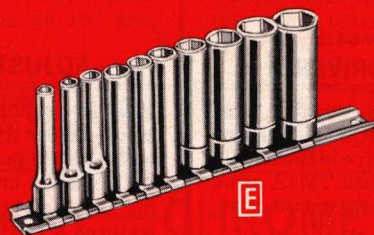
D



F



B



E

DEEP

D 6 POINT...FLANK DRIVE

Fed. Specs. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B			
1/8"	*STM04	15/64"	7/16"	121/32"	2"	3/32"
5/32"	*STM05	17/64"	7/16"	121/32"	2"	1/8"
3/16"	*STM6	19/64"	7/16"	121/32"	2"	3/16"
7/32"	STM7	11/32"	7/16"	121/32"	2"	7/32"
1/4"	STM8	3/8"	7/16"	121/32"	2"	1/4"
9/32"	STM9	7/16"	7/16"	121/32"	2"	9/32"
5/16"	STM10	7/16"	7/16"	121/32"	2"	5/16"
11/32"	STM11	1/2"	1/2"	121/32"	2"	5/16"
3/8"	STM12	9/16"	1/2"	121/32"	2"	5/16"
7/16"	STM14	5/8"	9/16"	121/32"	2"	5/16"
1/2"	STM16	11/16"	19/32"	121/32"	2"	5/16"
9/16"	STM18	25/32"	23/32"	119/32"	2"	5/16"

*Standard broach.

110STM Set. Sockets STM6 thru STM18.

E 110STM Set. Sockets STM6 thru STM18 on A265 Socket Rail and clips.

112STM Set. Sockets STM04 thru STM18.

CAUTION: For hand operation only.

STANDARD

A 6 POINT...FLANK DRIVE

Fed. Specs. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B			
1/8"	*TM04	15/64"	7/16"	1/2"	7/8"	1/8"
5/32"	*TM05	17/64"	7/16"	1/2"	7/8"	1/8"
3/16"	*TM6	19/64"	7/16"	17/32"	7/8"	3/16"
7/32"	TM7	11/32"	7/16"	17/32"	7/8"	7/32"
1/4"	TM8	3/8"	7/16"	17/32"	7/8"	1/4"
9/32"	TM9	7/16"	7/16"	17/32"	7/8"	3/16"
5/16"	TM10	7/16"	7/16"	17/32"	7/8"	1/4"
11/32"	TM11	1/2"	1/2"	17/32"	7/8"	9/32"
3/8"	TM12	9/16"	9/16"	17/32"	7/8"	9/32"
7/16"	TM14	5/8"	9/16"	17/32"	7/8"	9/32"
1/2"	TM16	11/16"	19/32"	17/32"	7/8"	9/32"
9/16"	TM18	25/32"	23/32"	7/16"	7/8"	5/16"

*Standard broach.

110TM Set. Sockets TM6 thru TM18.

B 110TMY Set. Sockets TM6 thru TM18 on A265 Socket Rail and clips.

112TM Set. Sockets TM04 thru TM18.

STANDARD

C 12 POINT...FLANK DRIVE

Fed. Specs. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B			
3/16"	*TMD6	19/64"	7/16"	17/32"	7/8"	3/16"
7/32"	TMD7	11/32"	7/16"	17/32"	7/8"	7/32"
1/4"	TMD8	3/8"	7/16"	17/32"	7/8"	7/32"
9/32"	TMD9	7/16"	7/16"	17/32"	7/8"	7/32"
5/16"	TMD10	15/32"	15/32"	17/32"	7/8"	1/4"
11/32"	TMD11	1/2"	1/2"	17/32"	7/8"	9/32"
3/8"	TMD12	9/16"	9/16"	17/32"	7/8"	9/32"
7/16"	TMD14	5/8"	9/16"	17/32"	7/8"	9/32"
1/2"	TMD16	11/16"	19/32"	17/32"	7/8"	9/32"
9/16"	TMD18	25/32"	23/32"	17/32"	7/8"	5/16"

*Standard broach.

110TMD Set. Sockets TMD6 thru TMD18.

110TMDY Set. Sockets TMD6 thru TMD18 on A265 Socket Rail and clips.

DEEP

F 12 POINT...FLANK DRIVE

Fed. Specs. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B			
3/16"	*STMD6	19/64"	7/16"	121/32"	2"	3/16"
7/32"	STMD7	11/32"	7/16"	121/32"	2"	7/32"
1/4"	STMD8	3/8"	7/16"	121/32"	2"	1/4"
9/32"	STMD9	7/16"	7/16"	121/32"	2"	9/32"
5/16"	STMD10	7/16"	7/16"	121/32"	2"	5/16"
11/32"	STMD11	1/2"	1/2"	121/32"	2"	11/32"
3/8"	STMD12	17/32"	1/2"	121/32"	2"	3/8"
7/16"	STMD14	5/8"	9/16"	121/32"	2"	7/16"
1/2"	STMD16	11/16"	19/32"	121/32"	2"	7/16"
9/16"	STMD18	25/32"	23/32"	119/32"	2"	5/16"

*Standard broach.

110STMD Set. Sockets STMD6 thru STMD18.

110STMDY Set. Sockets STMD6 thru STMD18 on A265 Socket Rail and clips.

Metric 1/4" drive on pages 112 and 113.

CHROME UNITS

1/4"

CAUTION: For hand operation only.

"FLEXOCKETS"

A 6 POINT... FLANK DRIVE

Fed. Spec. GGG-W-641E		Outside Diameter		Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B		
3/16"	*TMUS61	19/64"	15/32"	1 11/64"	7/32"
1/4"	TMUS81	3/8"	15/32"	1 11/64"	7/32"
5/16"	TMUS101	15/32"	15/32"	1 1/4"	1/4"
11/32"	TMUS111	1/2"	15/32"	1 9/32"	1/4"
3/8"	TMUS121	17/32"	15/32"	1 5/16"	9/32"
7/16"	TMUS141	39/64"	15/32"	1 23/64"	5/16"
1/2"	TMUS161	43/64"	15/32"	1 29/64"	5/16"
9/16"	TMUS181	25/32"	15/32"	1 31/64"	11/32"

*Standard broach.

B 106TMUS Set. "FLEXOCKETS" TMUS81, 101, 121, 141, 161, and 181, in a plastic tray.

108TMUS Set. "FLEXOCKETS" TMUS61 thru TMUS181.

C 108TMUSY Set. All "FLEXOCKETS" above on A265 Socket Rail and clips.

D 12 POINT... FLANK DRIVE

Fed. Spec. GGG-W-641E		Outside Diameter		Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B		
3/16"	*TMU61	19/64"	15/32"	1 11/64"	7/32"
7/32"	TMU71	11/32"	15/32"	1 11/64"	7/32"
1/4"	TMU81	3/8"	15/32"	1 11/64"	7/32"
9/32"	TMU91	27/64"	15/32"	1 7/32"	1/4"
5/16"	TMU101	15/32"	15/32"	1 1/4"	1/4"
11/32"	TMU111	1/2"	15/32"	1 9/32"	1/4"
3/8"	TMU121	17/32"	15/32"	1 5/16"	9/32"
7/16"	TMU141	39/64"	15/32"	1 23/64"	5/16"
1/2"	TMU161	43/64"	15/32"	1 29/64"	5/16"
9/16"	TMU181	25/32"	15/32"	1 31/64"	11/32"

*Standard broach.

106TMU Set. "FLEXOCKETS" TMU81, 101, 121, 141, 161 and 181 in a plastic tray.

110 TMU Set. "FLEXOCKETS" TMU61 thru TMU181.

110TMUY Set. "FLEXOCKETS" TMU61 thru TMU181 on A265 Socket Rail and clips.

E UNIVERSAL JOINT

Permits all sockets and handles to be operated at an angle from the fastener.

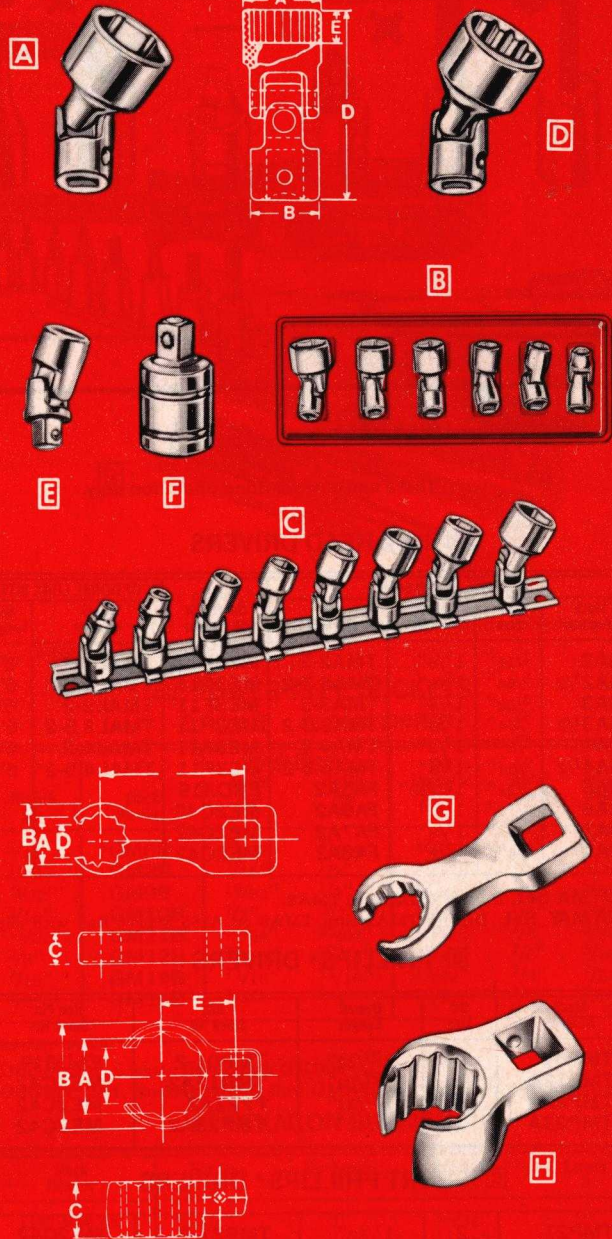
Stock No.	Outside Diameter	Overall Length
TMU8	1/2"	1 15/64"

CROWFOOT FLARE NUT WRENCHES... 12 POINT... FLANK DRIVE

CAUTION: Excessive torque could result in jaw slippage and/or spreading.

G Also used as torque adaptors. They add 31/32" to distance between hand and nut when used with a TORQOMETER.®

Stock No.	Wrench Size A	Head Diam. B	Head Depth. C	Wall Opening D	Center to Center E
TMRX8	1/4"	.406"	1/4"	.150"	31/32"
TMRX10	5/16"	.500"	1/4"	.212"	31/32"
TMRX12	3/8"	.593"	1/4"	.275"	31/32"



F ADAPTORS

▲ Fed. Spec. GGG-W-641E

Stock No.	Square Drive		Outside Diameter	Overall Length
	Female End	Male End		
▲ TM1	3/8"	1/4"	21/32"	1 1/8"
▲ TA3	1/4"	3/8"	1/2"	15/16"

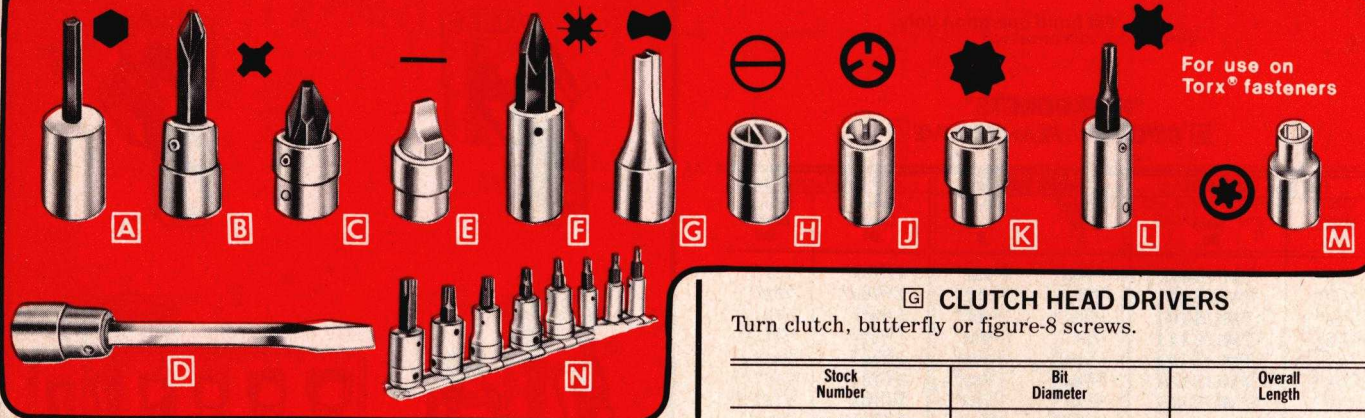
Fed. Spec. GGG-C-1507A, Type 1, Class 1.		Wrench Size A	Head Diam. (Max.) B	Head Depth + 1/16" -0 C	Wall Opening + 1/32" -0 D	Center to Center E
Stock Number						
<input checked="" type="checkbox"/>	†AN8508-6	3/8"	19/32"	15/32"	9/32"	33/64"
<input checked="" type="checkbox"/>	AN8508-7	7/16"	11/16"	17/32"	11/32"	9/16"
<input checked="" type="checkbox"/>	AN8508-8	1/2"	25/32"	17/32"	3/8"	39/64"
<input checked="" type="checkbox"/>	AN8508-9	9/16"	27/32"	17/32"	7/16"	41/64"

†Equipped with a side hole. (3/8" & 1/2" drive on pages 59 & 70)

Metric 1/4" drive on pages 112 and 113.

1/4"

CHROME UNITS



CAUTION: These units are for hand operation only.

A HEX HEAD DRIVERS

Fed. Spec. GGG-W-641E				Roll Pin Set Screw Stock No.	OPTIONAL LONG BITS	
Stock Number	Bit Size	Overall Length	Bit Stock No.		Stock Number	Bit Length
TMA2	1/16"	1 7/8"	TMA2-2	ME3F11	TMAL2-2	6"
TMA2 1/2	5/64"	1 7/8"	TMA2.5-2	ME3F11	TMAL2.5-2	6"
TMA3	3/32"	1 7/8"	TMA3-2	ME3F11	TMAL3-2	6"
TMA3 1/2	7/64"	1 7/8"	TMA3.5-2	ME3F11	TMAL3.5-2	6"
TMA4	1/8"	1 7/8"	TMA4-2	ME3F11	TMAL4-2	6"
TMA4 1/2	9/64"	1 7/8"	TMA4.5-2	ME3F11	TMAL4.5-2	6"
TMA5	5/32"	1 27/32"	FA5A2	ESD319		
TMA6	3/16"	1 7/8"	FA6A2	ME2C42		
TMA7	7/32"	1 7/8"	FA7A2	ME2C42		
TMA8	1/4"	1 7/8"	FA8A2	ME2C42		

110TMA Set. Drivers TMA2 thru TMA8.

110TMA Set. Drivers TMA2 thru TMA8 on A265 Socket Rail with clips.

B PHILLIPS® DRIVERS

Stock Number	Bit Size	Overall Length	Bit Stock No.	Roll Pin Stock No.
TMP01	0	1 27/32"	TMP01-2	ESD319
TMP12A	1	1 27/32"	TMP12A2	ME2C42
TMP22A	2	1 27/32"	FP22A2	ME2C42
TMP23A	2	3 1/32"	TMP23A2	ME2C42

C SHORT PHILLIPS® DRIVERS

Stock Number	Bit Size	Overall Length	Bit Stock No.	Roll Pin Stock No.
TMP21	2	1 7/32"	TMP21-2	ME2C42
TMP82	2	1 5/16"	TMP82-2A	ESD303

D STANDARD DRIVERS

(▲ Fed. Spec. GGG-W-641E)

Stock Number	Tip Size	Bit Stock No.	Roll Pin Stock No.
▲ TMC104A	3/16" x .033"	TMC104B2	ESD319
TMC105A	1/4" x .033"	TMC105B2	ME2C42
TMC106A	3/8" x .042"	TMC106B2	ME2C42

E STANDARD SHORT DRIVER

Stock Number	Tip Size	Overall Length
TM82	1/4" x .032"	7/8"

F POZIDRIV® DRIVER

Stock Number	Bit Size	Overall Length	Bit Stock No.	Roll Pin Stock No.
TMPD11	1	1 9/16"	TMPD11-2	ME2C42

G CLUTCH HEAD DRIVERS

Turn clutch, butterfly or figure-8 screws.

Stock Number	Bit Diameter	Overall Length
TM27	1 1/64"	1 3/8"
TM30	15/64"	1 3/8"
TM31	5/32"	1 3/8"

H CARBURETOR SCREWDRIVERS

Stock Number	Blade Size	Overall Length
TM83A	1/32" x 23/64"	13/16"
TM84	1/32" x 7/16"	13/16"
TM85	1/32" x 9/32"	13/16"

J TRI-WING SOCKETS

Fastener Size	Stock No.	Sq. Dr. Size	Overall Length	Diameter	
				Wr. End	Dr. End
#1	TTW11	1/4"	7/8"	15/32"	15/32"
#2	TTW12	1/4"	7/8"	15/32"	15/32"

K DOUBLE SQUARE SOCKETS

Fed. Spec. GGG-W-641E		Outside Diameter		Bolt Clearance Depth	Overall Length	Broach Depth
Wrench Size	Stock Number	Socket End	Handle End			
1/4"	TM408	15/32"	15/32"	17/32"	7/8"	1/4"
5/16"	TM410	9/16"	9/16"	17/32"	7/8"	9/32"
3/8"	TM412	21/32"	9/16"	17/32"	7/8"	1/4"

L TORX® DRIVERS

TTX25B is designed for tamper proof fasteners found on late model AMC cars. All units below have GM applications.

Fastener Size	Stock Number	Bit Dia.	Overall Length	Bit Stock No.	Roll Pin Stock No.
T8	TTX8	.090"	1 9/16"	TTX8-2	ME2C42
T10	TTX10	.107"	1 9/16"	TTX10-2	ME2C42
T15	TTX15A	.123"	1 9/16"	TTX15A2	ME2C42
T20	TTX20B	.152"	1 9/16"	TTX20B2	ME2C42
T25	TTX25B	.174"	1 9/16"	TTX25B2	ME2C42

M SOCKET

For use on TORX® style fasteners.

Fastener Size	Stock No.	Overall Length	Diameter	
			Wr. End	Dr. End
E6	TLE60	7/8"	7/16"	21/64"

N TORX® DRIVER SET

208FTXY Set. Includes TTX15A, 20B, 25B Drivers (listed above) and FTX27A, 30A, 40A, 45A and 50A Drivers (3/8" drive, page 58) on A265 Socket Rail with clips.

BLACK UNITS

1/4"



A & C THIN-WALL SOCKETS

A STANDARD...6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
3/16"	*GTM6	5/16"	7/16"	17/32"	7/8"	3/16"
7/32"	GTM7	11/32"	7/16"	17/32"	7/8"	7/32"
1/4"	GTM8	25/64"	7/16"	17/32"	7/8"	7/32"
9/32"	GTM9	7/16"	7/16"	17/32"	7/8"	3/16"
5/16"	GTM10	15/32"	7/16"	17/32"	7/8"	1/4"
11/32"	GTM11	1/2"	1/2"	17/32"	7/8"	9/32"
3/8"	GTM12	17/32"	17/32"	17/32"	7/8"	9/32"
7/16"	GTM14	5/8"	9/16"	17/32"	7/8"	9/32"
1/2"	GTM16	11/16"	19/32"	17/32"	7/8"	9/32"

*Standard broach.

109GTM Set. Sockets GTM6 thru GTM16.

109GTM Set. Sockets GTM6 thru GTM16 on A265 Socket Rail and clips.

111GTM Set. Sockets GTM6 thru GTM16 plus GM70S Ratchet and GM4A Driver.

B 111GTMB Set. Sockets GTM6 thru GTM16 plus GM70S Ratchet and GM4A Driver in KRA222B Metal Box.

C BOLT CLEARANCE...6 POINT...FLANK DRIVE

3/16"	*GSTM6	5/16"	7/16"	121/32"	2"	3/16"
7/32"	GSTM7	11/32"	7/16"	121/32"	2"	7/32"
1/4"	GSTM8	25/64"	7/16"	121/32"	2"	1/4"
9/32"	GSTM9	7/16"	7/16"	121/32"	2"	9/32"
5/16"	GSTM10	15/32"	7/16"	121/32"	2"	5/16"
11/32"	GSTM11	1/2"	1/2"	121/32"	2"	5/16"
3/8"	GSTM12	9/16"	1/2"	121/32"	2"	5/16"
7/16"	GSTM14	5/8"	9/16"	121/32"	2"	5/16"
1/2"	GSTM16	11/16"	19/32"	121/32"	2"	5/16"

*Standard broach.

109GSTM Set. Sockets GSTM6 thru GSTM16.

109GSTM Set. Sockets GSTM6 thru GSTM16 on A265 Socket Rail and clips.

D MAGNETIC SOCKETS...6 POINT...FLANK DRIVE

Removable magnet. Replaceable socket blanks are available. These can be used on powered attachments.

Wrench Size	Stock Number	Outside Diameter		Overall Length D	Broach Depth E	Repl. Socket Less Mag.
		Socket End A	Handle End B			
3/16"	*MGM6B	23/64"	15/32"	7/8"	5/64"	—
1/4"	MGM8D	7/16"	1/2"	7/8"	3/32"	MGM8D1
1/4"	†MGM8TB	25/64"	1/2"	7/8"	3/32"	MGM8TB1
5/16"	MGM10C	1/2"	1/2"	7/8"	3/32"	MGM10C1
3/8"	MGM12C	9/16"	9/16"	7/8"	1/8"	MGM12C1
7/16"	MGM14C	11/16"	11/16"	15/16"	9/64"	MGM14C1

*Standard broach.

105MGM Set. All sockets above except MGM8TB. † This socket has a very small nose diameter.

B

CAUTION: The units on this page are for hand operation, except where noted.

E POWER-TYPE SOCKETS

6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
3/16"	*GM6B	11/32"	31/64"	17/32"	7/8"	9/64"
1/4"	GM8B	7/16"	1/2"	17/32"	7/8"	5/32"
9/32"	GM9B	15/32"	1/2"	17/32"	7/8"	5/32"
5/16"	GM10B	1/2"	1/2"	17/32"	7/8"	5/32"
11/32"	GM11B	35/64"	35/64"	17/32"	7/8"	5/32"
3/8"	GM12B	37/64"	37/64"	17/32"	7/8"	3/16"
7/16"	GM14B	11/16"	11/16"	17/32"	7/8"	7/32"
1/2"	GM16B	3/4"	3/4"	17/32"	7/8"	3/16"

*Standard broach.

108GM Set. Sockets GM6B thru GM16B.

108GMY Set. Sockets GM6B thru GM16B on A265 Socket Rail and clips.

F HEXAGON SHANKS

Stock Number	Hex End A	Hex Length B	Recess to End C	Length D
GM3042A	1/4"	1"	11/32"	2"
GM3043	1/4"	1"	11/32"	4"
GM3046	1/4"	1"	11/32"	6"

G PLASTIC HANDLE DRIVER

Square drive has locking button connection. Plastic handle is not intended to act as insulation.

Stock Number	Shank Diameter	Shank Length	Overall Length
GM4A	1/4"	2"	5 3/4"

H RATCHET

CAUTION: Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance. Worn parts should be replaced with contents of repair kit. Parts should not be replaced individually.

Ratchet comes with friction ball connection. Optional lock button connection may be specially ordered.

Stock Number	Gear Action	Head Depth	Head Width	Overall Length
GM70S	20 Tooth	3/8"	13/16"	4 13/32"

RR930 Ratchet Repair Kit. For GM70S Ratchet.

Metric 1/4" drive on pages 112 and 113.

3/8"

SETS

A

B

88 TOOLS

44 TOOLS

CAUTION: The units on this page are for hand use only.

6 & 12 POINT SET

12 POINT SET

A 295FB Set. All tools listed below in KRA250B Metal Box with Tote Tray
295F Set. Tools only.

B 247FB Set. All tools below designated with an "X" in KRA250B Metal Box with Tote Tray.
247F Set. Tools only.

Stock No.	Description	247F	Stock No.	Description	247F	Stock No.	Description	247F
211FU	12 Point "FLEXOCKET" Set.	X	F40A	Short Shank Driver.	X	FU8A	Universal Joint.	X
211FSY	6 Point Std. Socket Set.	X	F67B	Ratchet Adaptor.	X	FX1	1 1/2" Extension.	X
211SFY	12 Point Deep Socket Set.	X	F720	Standard Handle Ratchet.	X	FX2	3" Extension.	X
211SFSY	6 Point Deep Socket Set.	X	F731	Flex-Head Ratchet.	X	FX4	4" Extension.	X
212FY	12 Point Std. Socket Set.	X	FA5A	5/32" Hex Head Wrench.	X	FX6	6" Extension.	X
F4LA	Speeder.	X	FA6A	3/16" Hex Head Wrench.	X	FX8	8" Extension.	X
F5L	Sliding T-Handle.	X	FA7A	7/32" Hex Head Wrench.	X	FX11	12" Extension.	X
F10LB	Breaker Bar.	X	FA8A	1/4" Hex Head Wrench.	X	FX61A	Flexextension.	X
F22A	Drag Link Socket.	X	FA10B	5/16" Hex Head Wrench.	X	PP409	9/32" Pipe Plug Socket.	X
F23D	1/4" Screw Driver.	X	FA12A	3/8" Hex Head Wrench.	X	PP410	5/16" Pipe Plug Socket.	X
F25D	5/16" Screw Driver.	X	FP22A	No. 2 PHILLIPS® Screw Driver.	X	PP412	3/8" Pipe Plug Socket.	X
F29A	3/8" Clutch Screw Driver.	X	FP32A	No. 3 PHILLIPS® Screw Driver.	X	S9704CFU	Spark Plug "FLEXOCKET".	X
F30	19/64" Clutch Screw Driver.	X	FP42B	No. 4 PHILLIPS® Screw Driver.	X			
F31D	3/8" Screw Driver.	X	FRS70A	Ratchet Spinner.	X			

C

E

D

10 TOOLS

18 TOOLS

18 TOOLS

6 POINT SETS

12 POINT SETS

C 218FSPB Set. Tools below designated with an "X" in KRA284 Metal Case with plastic tray.

218FSP Set. Above set in plastic tray.

D 218FSB Set. Above set in KRA281 Metal Case.

E 2105FSP Set. Tools below designated with an "X" in a plastic tray.

C 218FPB Set. Tools below designated with an "X" in KRA284 Metal Case with plastic tray.

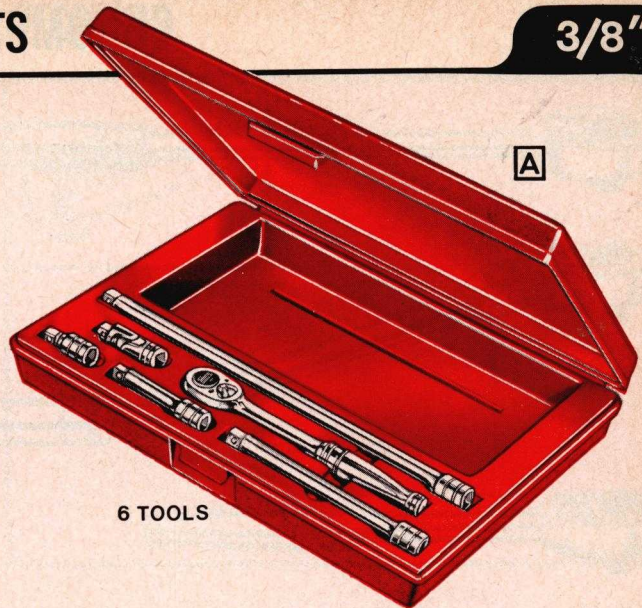
218FP Set. Above set in plastic tray.

D 218FB Set. Above set in KRA281 Metal Case.

Stock No.	Description	218 FPB	218 FSPB	210 FSP	Stock No.	Description	218 FPB	218 FSPB	210 FSP	Stock No.	Description	218 FPB	218 FSPB	210 FSP
F4LA	Speeder.	X	X		F241	3/4" Dbl. Hex Socket.	X			FS201	5/8" Sgl. Hex Socket.	X	X	X
F10LB	Breaker Bar.	X	X		F261	13/16" Dbl. Hex Socket.	X			FS221	11/16" Sgl. Hex Socket.	X	X	X
F081	1/4" Dbl. Hex Socket.	X			F281	7/8" Dbl. Hex Socket.	X			FS241	3/4" Sgl. Hex Socket.	X	X	X
F101	5/16" Dbl. Hex Socket.	X			F720	Ratchet.	X	X	X	FS261	13/16" Sgl. Hex Socket.	X		
F121	3/8" Dbl. Hex Socket.	X			FS081	1/4" Sgl. Hex Socket.	X			FS281	7/8" Sgl. Hex Socket.	X		
F141	7/16" Dbl. Hex Socket.	X			FS101	5/16" Sgl. Hex Socket.	X			FU8A	Universal Joint.	X	X	
F161	1/2" Dbl. Hex Socket.	X			FS121	3/8" Sgl. Hex Socket.	X	X	X	FX2	3" Extension.	X	X	X
F181	9/16" Dbl. Hex Socket.	X			FS141	7/16" Sgl. Hex Socket.	X	X	X	FX6	6" Extension.	X	X	X
F201	5/8" Dbl. Hex Socket.	X			FS161	1/2" Sgl. Hex Socket.	X	X	X	FX11	12" Extension.	X	X	
F221	11/16" Dbl. Hex Socket.	X			FS181	9/16" Sgl. Hex Socket.	X		X					

Metric 3/8" drive on pages 114-118

BUILD YOUR OWN SET!

SUGGESTED
SETS

6 TOOLS

BUILD YOUR OWN 3/8" DRIVE SET...Start with the 206FSP Handle Set (illustrated at right, described below) and add any of the suggested socket sets listed below, or choose from the many special purpose sockets Snap-on has available. The 206FSP Handle Set is packaged in the PB16 Plastic Case which has a large enough cavity to

206FSP Set. Includes the **F720** Ratchet, **FU8A** Universal Joint, **FX1** 1 1/2" Extension Bar, **FX2** 3" Extension Bar, **FX6** 6" Extension Bar and **FX11** 12" Extension Bar in **PB16** Plastic Case.

SUGGESTED OPTIONAL SOCKET SETS

For 206FSP Set

213FSY Set. Includes thirteen, standard, six point sockets ranging in size from 1/4" to 1" on A267 Socket Rail with clips (page 55).

212FY Set. Includes twelve, standard, twelve point sockets ranging in size from 1/4" to 7/8" on A269 Socket Rail with clips (page 55).

211FSY Set. Includes eleven, deep, six point sockets ranging in size from 1/4" to 7/8" on A269 Socket Rail with clips (page 55).

accommodate as many as four rows of standard length sockets; two rows of deep or "FLEXOCKETS"; or a combination of two rows of standard length and one row of deep sockets or "FLEXOCKETS" in either U.S. or metric sizes. See page 114 for some suggested metric socket sets.

211SFY Set. Includes eleven, deep, twelve point sockets ranging in size from 1/4" to 7/8" on A269 Socket Rail with clips (page 55).

207FSUY Set. Includes seven, deep, six point "FLEXOCKETS" ranging in size from 3/8" to 3/4" on A265 Socket Rail with clips (page 56).

211FUY Set. Includes eleven, standard, twelve point "FLEXOCKETS" ranging in size from 5/16" to 15/16" on A265 Socket Rail with clips (page 56).

212FSY Set. Includes twelve, standard, six point "FLEXOCKETS" ranging in size from 5/16" to 1" on A267 Socket Rail with clips (page 56).



B

22 TOOLS

222FSP Set. This 3/8" drive, single hex set includes seven standard sockets and seven deep sockets ranging in size from 3/8" to 3/4". All of the sockets feature "Flank Drive". The set also includes a nut spinner, ratchet, universal joint, three extension bars and two spark plug sockets. Each tool is chrome plated for easy clean-up and longer tool life. Set comes packaged in the PB17 Plastic Case. For the metric version of this set refer to page 114.

Stock Number	Description	Stock Number	Description
F10LB	3/8" Nut Spinner	FX4	4" Extension Bar
F720	Standard Handle Ratchet	FX8	8" Extension Bar
FS121	3/8" Sgl. Hex Socket	S9704F	13/16" Spark Plug Socket
FS141	7/16" Sgl. Hex Socket	S9706	5/8" Spark Plug Socket
FS161	1/2" Sgl. Hex Socket	SFS121	3/8" Sgl. Hex Deep Socket
FS181	9/16" Sgl. Hex Socket	SFS141	7/16" Sgl. Hex Deep Socket
FS201	5/8" Sgl. Hex Socket	SFS161	1/2" Sgl. Hex Deep Socket
FS221	11/16" Sgl. Hex Socket	SFS181	9/16" Sgl. Hex Deep Socket
FS241	3/4" Sgl. Hex Socket	SFS201	5/8" Sgl. Hex Deep Socket
FU8A	3/8" Sq. Universal Joint	SFS221	11/16" Sgl. Hex Deep Socket
FX2	3" Extension Bar	SFS241	3/4" Sgl. Hex Deep Socket

3/8"

CHROME RATCHETS



A



B



C

FAST RELEASE
RATCHET

D



E



F



G

CAUTION: Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance. Worn parts should be replaced with contents of repair kit. Parts should not be replaced individually.

RATCHET FEATURES

- **CHROME FINISH**...helps prevent rust and maintain a professional appearance.
- **HIGH GRADE ALLOY STEEL**...specially heat treated for strength and wear resistance.
- **HEAD DESIGN**...specially designed to fit into tight areas.
- **REVERSE LEVER**...provides simple one finger operation. Recessed to minimize accidentally reversing while in use.
- **DUST COVER**...carefully engineered to protect the ratcheting mechanism from contaminants, extending tool life.
- **HANDLES**...shaped and tapered to fit the hand for firm steady control and use.
- **HOUSINGS**...on all the ratchets on this page (except the FM70) have been redesigned to accommodate either a fine or coarse tooth gear.

A LONG HANDLE

Provides extra reach and leverage. Reversible action.

Fed. Spec. GGG-W-1437 applies.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
•FL720	20 Tooth	9/16"	1 1/8"	10 1/4"

B BENT HANDLE FLEX-HEAD

A bend in the handle near the grip provides added clearance around obstructions. Reversible action.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
••F732	20 Tooth	9/16"	1 1/8"	10 57/64"

C FAST RELEASE

Provides fast, easy push button release of sockets and other attachments. Reversible action.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
•F723	20 Tooth	3/8"	1 1/8"	7 9/16"

D SMALL HEAD

Gets into tight working areas often encountered in automotive, electrical and industrial assemblies. Reversible action.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
FM70	20 Tooth	3/8"	27/32"	4 27/64"

E SHORT HANDLE

For use in very restricted access areas. The short handle has a ball end to help prevent hand from slipping. Reversible action.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
•FK720	20 Tooth	9/16"	1 1/8"	4 1/16"

F STANDARD HANDLE

Reversible action.

Fed. Spec. GGG-W-641E applies.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
••F730	30 Tooth	9/16"	1 1/8"	7 9/16"
•F720	20 Tooth	9/16"	1 1/8"	7 9/16"

G FLEX-HEAD

Provides angle flexibility for servicing hard-to-reach fasteners. The ratchet head, held in a semi-flex position by spring tension swings to the required working position.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
••F731	30 Tooth	9/16"	1 1/8"	11 3/16"

•Replace gear and pawl with F71G3R Gear and F730-4 Pawl to change from 20-tooth to 30-tooth gear action.

•Replace gear and pawl with F720-30 Gear and F720-4 Pawl to change from 30-tooth to 20-tooth gear action.

RATCHET REPAIR KITS

RKRF720 Kit. For F720, FK720 and FL720 Ratchets.

RKRF723 Kit. For F723 Ratchet.

RKRF730 Kit. For F730, F731 and F732 Ratchets.

Metric 3/8" drive on pages 114-118.



A



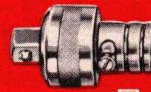
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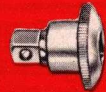
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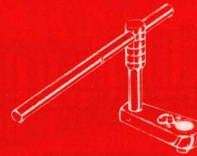
E



F



F734 Shown with various handles



CAUTION: Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance. Worn parts should be replaced with contents of repair kit. Parts should not be replaced individually. Plastic handles are not intended to act as insulation. Do not use on live electric circuits.

RATCHET FEATURES

- **CHROME FINISH**... helps prevent rust and maintain a professional appearance.
- **HIGH GRADE ALLOY STEEL**... specially heat treated for strength and wear resistance.
- **HEAD DESIGN**... specially designed to fit into tight areas.
- **REVERSE LEVER**... provides simple one finger operation.
- **DUST COVER**... carefully engineered to protect the ratcheting mechanism from contaminants, extending tool life.
- **HANDLES**... shaped and tapered to fit the hand for firm steady control and use.

A PLASTIC HANDLE

Rounded, plastic screwdriver type handle provides a comfortable, firm, non-slip grip. Reversible action.

Stock Number	Gear Action	Head Depth	Head Width	Overall Length
•F726	20 Tooth	9/16"	1 1/8"	8 11/32"

B PLASTIC HANDLE FLEX-HEAD

Features rounded, plastic screwdriver type handle. Flex-head provides angle flexibility for servicing hard to reach fasteners.

Stock Number	Gear Action	Head Depth	Head Width	Overall Length
••F735	20 Tooth	9/16"	1 1/8"	8 11/32"

C FLAT HANDLE

Fed. Spec. GGG-W-641E

Stock Number	Gear Action	Head Depth	Head Width	Overall Length
FN720	20 Tooth	9/16"	1 1/8"	6 1/8"

Replace gear and pawl with FN730-30 Gear and F730-4 Pawl to change from 20-tooth to 30-tooth gear action.

D PALM STYLE

Designed for low torque jobs in restricted areas. Black plastic handle. Reverse lever in base of tool.

Stock Number	Gear Action	Head Depth	Triangular Side Length
F714	20 Tooth	1 3/16"	2 5/8"

E MULTI-PURPOSE RATCHET HEAD

Compact size allows easy access in confined areas. Three square drive holes permits the use of a variety of 3/8" drive handles or it can be used alone. A center-to-center length of 2" allows it to be used as a torque adaptor.

Stock Number	Gear Action	Head Depth	Head Width	Overall Length
F734	30 Tooth	1/2"	1 11/64"	3"

F RATCHET ADAPTOR

Fed. Spec. GGG-W-641E

Converts 3/8" drive handle or SNAP-ON Torqometer® into a reverse ratcheting tool. Knurled edge provides a firm grip.

Stock Number	Gear Action	Head Depth	Head Width	Overall Length
F67B	20 Tooth	45/64"	1 3/64"	2 1/16"

G SPINNER

Attaches to the square drive between the socket and the ratchet. Finger tip turn allows you to spin the fastener to achieve ratcheting tension. Milled edge provides a firm grip.

Stock Number	Diameter of Milled Plate	Overall Length
FRS70A	1 1/4"	1 9/32"

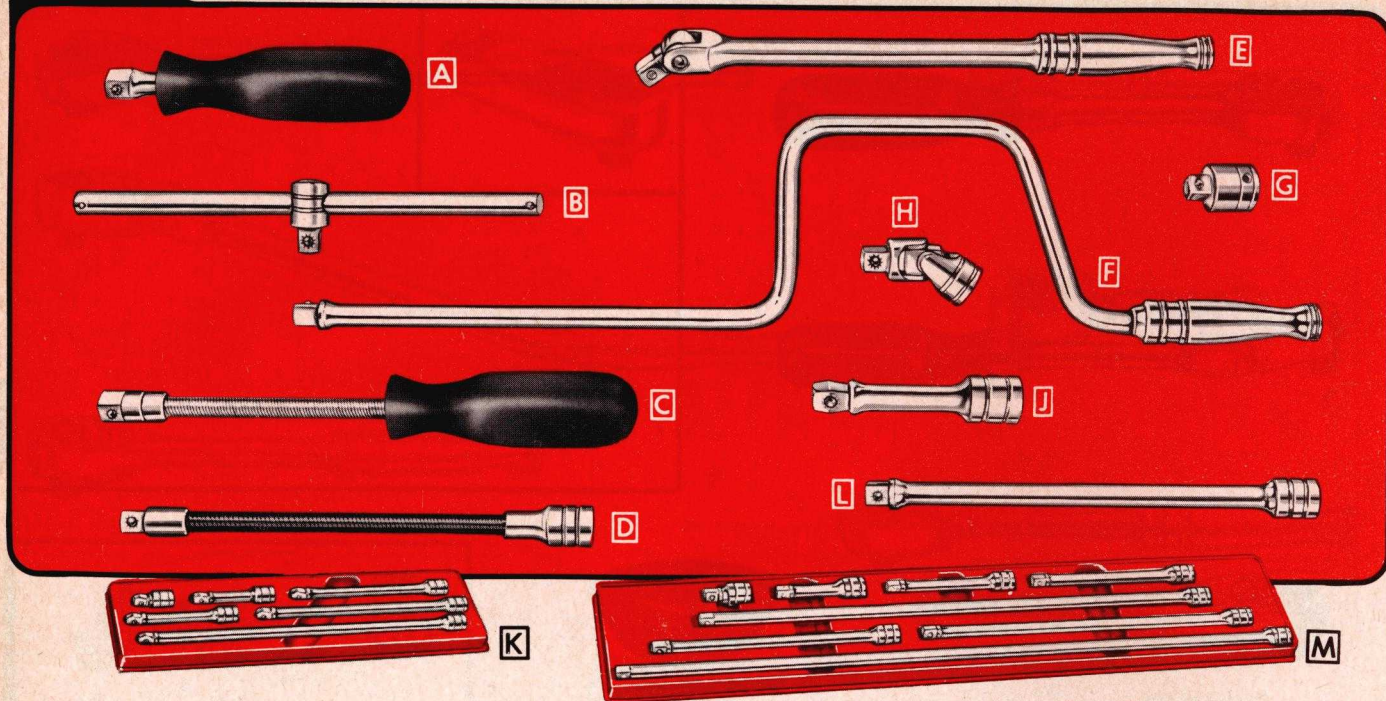
- Replace gear and pawl with F71G3R Gear and F730-4 Pawl to change from 20-tooth to 30-tooth gear action.
- Replace gear and pawl with F720-30 Gear and F720-4 Pawl to change from 30-tooth to 20-tooth gear action.

RATCHET REPAIR KITS

RKRF720 Kit. For F726 and F734 Ratchets.
RKRF730 Kit. For F735 Ratchet.
RKRFN720 Kit. For FN720 Ratchet.

3/8"

CHROME UNITS



CAUTION: Use with manually powered handles only. Plastic handles are not intended to act as insulation. Do not use on live electric circuits.

A PLASTIC HANDLE

Ideal for low torque turning jobs. Plastic screwdriver type handle provides a firm comfortable grip. Handle resists grease, oil and gas.

Stock Number	Shank Diameter	Shank Length	Overall Length
F40A	1/2"	17/8"	5 1/4"
F50	1/2"	5"	9 1/4"

B SLIDING T-HANDLE

Designed for heavier duty applications. Can be used as a "T" Handle exerting equal leverage or as an offset wrench. Sliding head can be used at any position on handle.

Stock Number	Head Depth	Handle Diameter	Handle Length
F5L	3/4"	13/32"	8"

C FLEXIBLE DRIVER

Flexible steel cable is designed to service hard to reach fasteners. Rounded plastic screwdriver type handle provides a firm comfortable grip.

Stock Number	Cable Diameter	Cable Length	Overall Length
FX62A	3/8"	4 15/16"	9 1/8"

D FLEXTENSION

Provides easy access to hard to reach fasteners where a solid handle or extension bar cannot be used.

Stock Number	Cable Diameter	Cable Length	Overall Length
FX61A	3/8"	6 5/8"	8"

E BREAKER BARS

Head swivels to any position. Inner spring holds head in a semi-flex position. Handle provides ample leverage to loosen or tighten stubborn fasteners.

Stock Number	Head Width	Shank Diameter	Overall Length
F10LB	13/16"	15/32"	9 1/2"
F12L	13/16"	15/32"	11 1/2"

F SPEEDERS

Provides fast efficient nut turning where space permits a wide handle swing. Designed to provide a long reach.

Stock Number	Shank Diameter	Shank Length	Sweep Radius	Overall Length
▲F4LA	13/32"	8 1/2"	3 1/4"	17 5/8"
▲F4MA	13/32"	15"	3 1/4"	24 1/2"
▲F4NA	13/32"	27"	3 1/4"	36 1/2"

G ADAPTORS

CAUTION: For hand use only.

Allow you to adapt up or down a drive size.

Stock Number	Female Square Drive	Male Square Drive	Overall Length
▲TM1	3/8"	1/4"	1 1/8"
▲TA3	1/4"	3/8"	15/16"
▲A2	3/8"	1/2"	15/16"
†GAX1	1/2"	3/8"	1 33/64"
†GAX4	1/2"	3/8"	5"
†GAX12	1/2"	3/8"	12"
†GAX24	1/2"	3/8"	23 1/4"
†GAX36	1/2"	3/8"	36"

†Black finish. See illustration on page 60.

H UNIVERSAL JOINTS

Permits all sockets and handles to be operated at various angles from the fastener.

Stock Number	Outside Diameter	Overall Length
▲FU8A	3/4"	1 15/16"
▲FU80A	1 1/16"	19/16"

J "WOBBLE" DRIVE EXTENSION BARS

Provides 16 1/2° angle flexibility for turning fasteners when clearance is a problem.

Stock Number	Shank Diameter	Overall Length
FXW1	13/32"	1 13/32"
FXW2	13/32"	3"
FXW4	13/32"	4"
FXW6	13/32"	6"
FXW8	13/32"	8"
FXW11	13/32"	12"

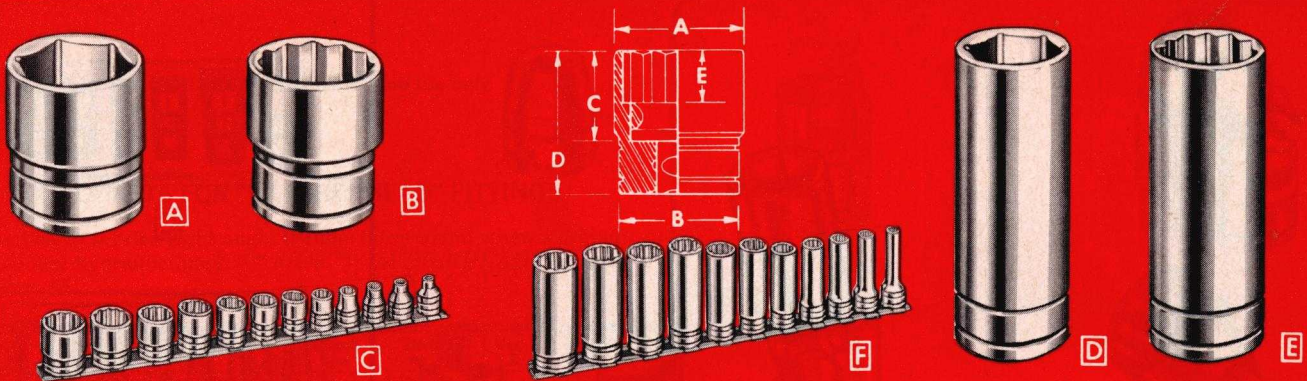
K 206FXW Set. Includes all "Wobble" Extension Bars above in a plastic tray.

L EXTENSION BARS

Provides extra reach.

Stock Number	Shank Diameter	Overall Length
▲FX1	13/32"	1 1/2"
▲FX2	13/32"	3"
▲FX4	13/32"	4 9/16"
▲FX6	13/32"	6"
▲FX8	13/32"	8"
▲FX11	13/32"	12"
▲FX18	1/2"	18"
▲FX24	1/2"	23 1/4"
▲FX36	1/2"	36"

M 208FX Set. Includes Extensions FX1 through FX24 in a plastic tray.



CAUTION: The units on this page are for hand use only.

STANDARD

A 6 POINT...FLANK DRIVE

Fed. Specs. GGG-W-641E

Wrench Size	Stock No.	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
1/4"	FS081	3/8"	21/32"	7/16"	29/32"	7/32"
5/16"	FS101	29/64"	21/32"	7/16"	29/32"	9/32"
11/32"	FS111	1/2"	21/32"	7/16"	29/32"	9/32"
3/8"	FS121	35/64"	21/32"	7/16"	29/32"	9/32"
7/16"	FS141	39/64"	21/32"	7/16"	29/32"	9/32"
1/2"	FS161	23/32"	21/32"	1/2"	15/16"	5/16"
9/16"	FS181	25/32"	23/32"	1/2"	15/16"	11/32"
19/32"	FS191	13/16"	3/4"	1/2"	13/64"	11/32"
5/8"	FS201	27/32"	51/64"	9/16"	11/32"	3/8"
11/16"	FS221	15/16"	7/8"	5/8"	11/16"	13/32"
3/4"	FS241	1"	15/16"	5/8"	13/32"	13/32"
13/16"	FS261	1 1/8"	1 1/64"	11/16"	15/32"	15/32"
7/8"	FS281	1 5/32"	1 3/32"	11/16"	15/32"	1/2"
15/16"	FS301	1 1/4"	1 3/32"	3/4"	13/16"	1/2"
1"	FS321	1 5/16"	1 1/4"	3/4"	13/16"	1/2"

211FS Set. Sockets FS081 through FS281 except FS111 and FS191.
211FSY Set. Sockets FS081 through FS281 except FS111 and FS191 on A269 Socket Rail with clips.
211FST Set. Sockets FS081 through FS281 except FS111 and FS191 in KTA232B Metal Tray (p. 21).
213FS Set. Sockets FS081 through FS321 except FS111 and FS191.
213FSY Set. Sockets FS081 through FS321 except FS111 and FS191 on A267 Socket Rail with clips.
215FS Set. Sockets FS081 through FS321.

B 12 POINT...FLANK DRIVE

Fed. Specs. GGG-W-641E

Wrench Size	Stock No.	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
1/4"	F081	3/8"	21/32"	7/16"	29/32"	7/32"
5/16"	F101	29/64"	21/32"	7/16"	29/32"	9/32"
11/32"	F111	31/64"	21/32"	7/16"	29/32"	9/32"
3/8"	F121	35/64"	21/32"	7/16"	29/32"	9/32"
7/16"	F141	39/64"	21/32"	7/16"	29/32"	9/32"
1/2"	F161	23/32"	21/32"	1/2"	15/16"	5/16"
9/16"	F181	25/32"	23/32"	1/2"	15/16"	11/32"
19/32"	F191	13/16"	3/4"	9/16"	1"	11/32"
5/8"	F201	27/32"	51/64"	9/16"	1 1/32"	3/8"
11/16"	F221	15/16"	7/8"	5/8"	1 1/16"	13/32"
3/4"	F241	1"	15/16"	5/8"	1 3/32"	13/32"
13/16"	F261	1 1/8"	1 1/64"	11/16"	1 5/32"	15/32"
7/8"	F281	1 5/32"	1 3/32"	11/16"	1 5/32"	1/2"
15/16"	F301	1 1/4"	1 3/16"	3/4"	1 3/16"	1/2"
1"	F321	1 5/16"	1 1/4"	3/4"	1 3/16"	1/2"

211F Set. Sockets F081 through F281 except F111 and F191.
211FY Set. Sockets F081 through F281 except F111 and F191 on A269 Socket Rail with clips.
211FT Set. Sockets F081 through F281 except F111 and F191 in KTA232B Metal Tray (p. 21).
212F Set. Sockets F081 through F281 except F191.
212FY Set. Sockets F081 through F281 except F191 on A269 Socket Rail with clips.
214F Set. Sockets F081 through F321 except F191.
214FY Set. Sockets F081 through F321 except F191 on A267 Socket Rail with clips.
215F Set. Sockets F081 through F321.

DEEP

D 6 POINT...FLANK DRIVE

Fed. Specs. GGG-W-641E

Wrench Size	Stock No.	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
1/4"	SFS081	3/8"	21/32"	1 1/16"	2 1/8"	7/32"
5/16"	SFS101	29/64"	21/32"	1 1/16"	2 1/8"	9/32"
3/8"	SFS121	17/32"	21/32"	1 1/16"	2 1/8"	9/32"
7/16"	SFS141	39/64"	21/32"	1 1/16"	2 1/8"	3/8"
1/2"	SFS161	23/32"	21/32"	1 1/16"	2 1/8"	13/32"
9/16"	SFS181	25/32"	23/32"	1 15/16"	2 3/8"	13/32"
5/8"	SFS201	27/32"	51/64"	1 15/16"	2 3/8"	13/32"
11/16"	SFS221	15/16"	7/8"	2 3/16"	2 5/8"	7/16"
3/4"	SFS241	1"	61/64"	2 3/16"	2 5/8"	7/16"
13/16"	SFS261	1 1/16"	1"	2 5/16"	2 3/4"	7/16"
7/8"	SFS281	1 5/32"	1 3/32"	2 5/16"	2 3/4"	1/2"
15/16"	SFS301	1 1/4"	1 3/16"	2 5/16"	2 3/4"	9/16"
1"	SFS321	1 5/16"	1 3/16"	2 5/16"	2 3/4"	5/8"

211SFS Set. Sockets SFS081 through SFS281.
211SFSY Set. Sockets SFS081 through SFS281 on A269 Socket Rail with clips.
211SFSST Set. Sockets SFS081 through SFS281 in KTA231B Metal Tray (p. 21).
213SFS Set. Sockets SFS081 through SFS321.
213SFSY Set. Sockets SFS081 through SFS321 on A267 Socket Rail with clips.

E 12 POINT...FLANK DRIVE

Fed. Specs. GGG-W-641E

Wrench Size	Stock No.	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
1/4"	SF081	3/8"	21/32"	1 11/16"	2 1/8"	7/32"
5/16"	SF101	29/64"	21/32"	1 11/16"	2 1/8"	9/32"
3/8"	SF121	17/32"	21/32"	1 11/16"	2 1/8"	9/32"
7/16"	SF141	39/64"	21/32"	1 11/16"	2 1/8"	3/8"
1/2"	SF161	23/32"	21/32"	1 11/16"	2 1/8"	13/32"
9/16"	SF181	25/32"	23/32"	1 15/16"	2 3/8"	13/32"
19/32"	SF191	13/16"	3/4"	1 15/16"	2 3/8"	13/32"
5/8"	SF201	27/32"	51/64"	1 15/16"	2 3/8"	13/32"
11/16"	SF221	15/16"	7/8"	2 3/16"	2 5/8"	7/16"
3/4"	SF241	1"	61/64"	2 3/16"	2 5/8"	7/16"
13/16"	SF261	1 1/16"	1"	2 5/16"	2 3/4"	7/16"
7/8"	SF281	1 5/32"	1 3/32"	2 5/16"	2 3/4"	1/2"
15/16"	SF301	1 1/4"	1 3/16"	2 5/16"	2 3/4"	9/16"
1"	SF321	1 5/16"	1 3/16"	2 5/16"	2 3/4"	5/8"

211SF Set. Sockets SF081 through SF281 except SF191.
211SFY Set. Sockets SF081 through SF281 except SF191 on A269 Socket Rail with clips.
211SFT Set. Sockets SF081 through SF281 except SF191 in KTA231B Metal Tray (p. 21).
213SF Set. Sockets SF081 through SF321 except SF191.
213SFY Set. Sockets SF081 through SF321 except SF191 on A267 Socket Rail with clips.
214SF Set. Sockets SF081 through SF321.

3/8"

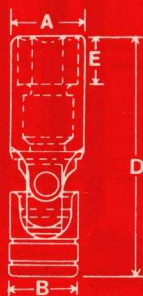
CHROME SOCKETS



A



B



D



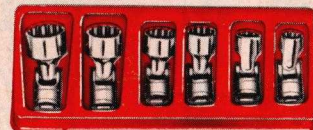
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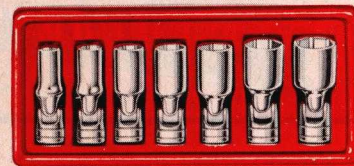
G



H



C



E

CAUTION: The units on this page are for hand use only.

A STANDARD "FLEXOCKETS"
6 POINT...FLANK DRIVE

Fed. Specs. GGG-W-641E		Outside Diameter		Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B		
5/16"	FS10A	15/32"	11/16"	1 37/64"	1/4"
3/8"	FS12A	17/32"	11/16"	1 37/64"	1/4"
7/16"	FS14A	5/8"	11/16"	1 37/64"	9/32"
1/2"	FS16A	23/32"	11/16"	1 21/32"	17/64"
9/16"	FS18A	25/32"	11/16"	1 11/16"	21/64"
5/8"	FS20A	7/8"	11/16"	1 3/4"	3/8"
11/16"	FS22	31/32"	3/4"	1 15/16"	13/32"
3/4"	FS24	1"	3/4"	1 63/64"	7/16"
13/16"	FS26	1 5/64"	3/4"	2 3/32"	15/32"
7/8"	FS28	1 5/32"	3/4"	2 3/32"	1/2"
15/16"	FS30	1 1/4"	3/4"	2 15/64"	17/32"
1"	FS32	1 5/16"	3/4"	2 15/64"	1/2"

206AFS Set. "FLEXOCKETS" FS14A through FS24 in a plastic tray.

208FS Set. "FLEXOCKETS" FS10A through FS24.

208FSB Set. "FLEXOCKETS" FS10A through FS24 in KRA223A Metal Box (page 23).

208FSY Set. "FLEXOCKETS" FS10A through FS24 on A265 Socket Rail with clips.

212FS Set. "FLEXOCKETS" FS10A through FS32.

212FSY Set. "FLEXOCKETS" FS10A through FS32 on A267 Socket Rail with clips.

B STANDARD "FLEXOCKETS"
12 POINT...FLANK DRIVE

Fed. Specs. GGG-W-641E		Outside Diameter		Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B		
5/16"	FU10A	15/32"	11/16"	1 39/64"	17/64"
3/8"	FU12A	9/16"	11/16"	1 37/64"	1/4"
7/16"	FU14A	5/8"	11/16"	1 37/64"	9/32"
1/2"	FU16A	23/32"	11/16"	1 21/32"	5/16"
9/16"	FU18A	25/32"	11/16"	1 11/16"	23/64"
5/8"	FU20A	7/8"	11/16"	1 3/4"	3/8"
11/16"	FU22A	31/32"	3/4"	1 15/16"	13/32"
3/4"	FU24A	1"	3/4"	1 31/32"	7/16"
13/16"	FU26A	1 1/8"	3/4"	2"	15/32"
7/8"	FU28A	1 5/32"	3/4"	2"	1/2"
15/16"	FU30	1 1/4"	3/4"	2 7/32"	1/2"

C 206FU Set. "FLEXOCKETS" FU14A through FU24A in plastic tray.

206FUY Set. "FLEXOCKETS" FU14A through FU24A on A265 Socket Rail with clips.

211FU Set. "FLEXOCKETS" FU10A through FU30.

211FUY Set. "FLEXOCKETS" FU10A through FU30 on A267 Socket Rail with clips.

D DEEP "FLEXOCKETS"
6 POINT...FLANK DRIVE

		Outside Diameter		Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B		
3/8"	FSU12	17/32"	11/16"	2 3/8"	23/64"
7/16"	FSU14	5/8"	11/16"	2 3/8"	27/64"
1/2"	FSU16	23/32"	11/16"	2 3/8"	7/16"
9/16"	FSU18	25/32"	11/16"	2 3/8"	1/2"
5/8"	FSU20	27/32"	11/16"	2 3/8"	17/32"
11/16"	FSU22	29/32"	3/4"	2 3/8"	17/32"
3/4"	FSU24	1"	3/4"	2 3/8"	9/16"

E 207FSU Set. "FLEXOCKETS" FSU12 through FSU24 in a plastic tray.

207FSUY Set. "FLEXOCKETS" FSU12 through FSU24 on A265 Socket Rail with clips.

F DRAG LINK SOCKET

Features a large standard screwdriver tip designed for tightening and adjusting drag links and a variety of large slotted fasteners.

Fed. Specs. GGG-W-641E		Blade Width	Blade Thickness	Overall Length
Stock Number				
F22A		11/16"	7/64"	1 1/4"

PIPE PLUG SOCKETS

G FEMALE

Stock Number	Square Drive	Female End	Overall Length
PP409	3/8"	9/32"	1"
PP410	3/8"	5/16"	1"
PP412	3/8"	3/8"	1"

H MALE

Stock Number	Square Drive	Male End	Overall Length
PPM408	3/8"	1/4"	1 1/8"
PPM410	3/8"	5/16"	1 1/8"
PPM411	3/8"	11/32"	1 1/8"
PPM412	3/8"	3/8"	1 1/8"

CHROME UNITS/IMPACT DRIVERS

3/8"

CAUTION: Units A — D are for hand use only.

A SOCKETS FOR "WEATHERHEAD" FITTINGS

Designed to service right angle fittings often found when working on air and hydraulic lines. 1/2" drive "WEATHERHEAD" sockets on page 66.

Wrench Size	Stock No.	Max. O.D.	Overall Length	Wrench Size	Stock No.	Max. O.D.	Overall Length
3/8"	FD120	5/8"	1 1/4"	19/32"	FD190	1 3/16"	1 1/4"
7/16"	FD140	13/16"	1 1/4"	21/32"	FD210	1 3/16"	1 3/8"
15/32"	FD150	7/8"	1 1/4"	11/16"	FD220	1 3/16"	1 3/8"
1/2"	FD160	15/16"	1 1/4"	3/4"	FD240	1 1/4"	1 3/8"
17/32"	FD170	1"	1 1/4"	25/32"	FD250	1 1/4"	1 3/8"
9/16"	FD180	1 1/16"	1 1/4"				

211FD Set. Sockets FD120 through FD250.

211FDY Set. Sockets FD120 through FD250 on A267 Socket Rail with clips.

B DOUBLE SQUARE SOCKETS

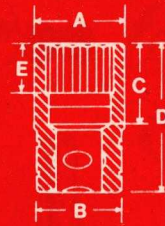
Services square fasteners found on cooling systems drain plugs in cylinder blocks.

Fed. Spec. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B			
1/4"	F308	31/64"	21/32"	3/8"	27/32"	7/32"
5/16"	F310	9/16"	21/32"	3/8"	27/32"	1/4"
3/8"	F312	21/32"	11/16"	15/32"	15/16"	9/32"
7/16"	F314	25/32"	11/16"	17/32"	1"	5/16"
1/2"	F316	7/8"	25/32"	17/32"	1"	5/16"
9/16"	F318	1"	29/32"	19/32"	1 1/8"	7/16"
5/8"	F320	1 1/16"	31/32"	19/32"	1 1/8"	7/16"

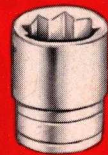
207F Set. Sockets F308 through F320.

207FY Set. Sockets F308 through F320 on A265 Socket Rail with clips.

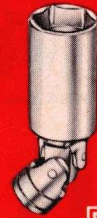
A



B



C



D

C STANDARD SPARK PLUG SOCKETS

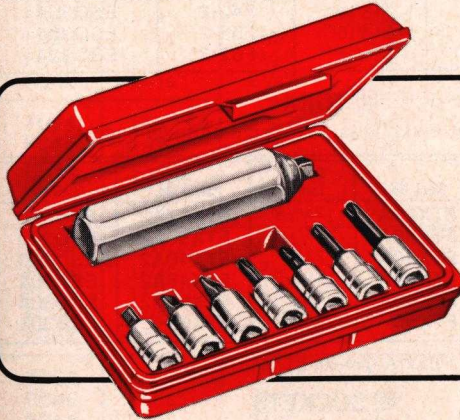
Stock Number	Socket Size	Male Hex	Overall Length	Rubber Insert
S9704F	13/16"	11/16"	2 15/32"	S9705A2
S9706	5/8"	5/8"	2 3/8"	S9706-2B
S9711	18 mm	5/8"	2 3/8"	S9706-2B
S9714	11/16"	5/8"	2 1/4"	S9706-2B
S9715	13/16"	5/8"	2 1/4"	—
S9717	5/8"	11/16"	2 25/64"	—

*Magnetic

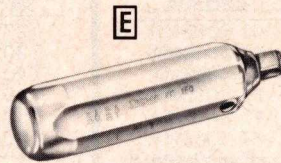
D SWIVEL-SQUARE SPARK PLUG SOCKETS

Stock Number	Socket Size	Overall Length	Rubber Insert
S9704CFU	13/16"	3 9/32"	S9705A2
S9706AFU	5/8"	3 11/32"	S9706-2B

3/8" IMPACT DRIVER



F



E



G

CAUTION: When using impact drivers always wear approved eye protection.

E PIT120 Impact Driver. 3/8" drive, delivers rotary impact blow in either direction.

F 208PIT Set. Includes PIT120 Impact Driver and all tools below designated with an "X" in PB4 Plastic Box.

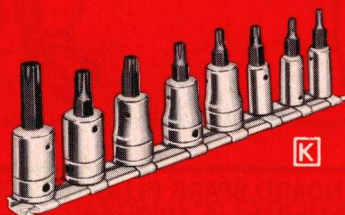
G PIT2230B Set. PIT120 Impact Driver plus all sockets and screwdrivers below in KRA142 Metal Box.

208PIT Set	Stock No.	Description	208PIT Set	Stock No.	Description	208PIT Set	Stock No.	Description	208PIT Set	Stock No.	Description
...	ESD300	Extra Roll Pin	X	F62	3/8" Screw Driver	...	FA12A	3/8" Hex Hd. Driver	X	FPD22	No. 2 POZIDRIV® Dr.
...	ESD303	Extra Roll Pin	...	F62-2	3/8" Extra Bit	...	FA12A2	3/8" Extra Bit	...	IMF120	3/8" Hex Socket
...	ESD304	Extra Roll Pin	...	FA6A	3/16" Hex Hd. Driver	X	FP22A	No. 2 PHILLIPS® Dr.	...	IMF140	7/16" Hex Socket
...	F22A	11/16" Hvy. Sc. Dr.	...	FA6A2	3/16" Extra Bit	...	FP22A2	No. 2 Extra Bit	...	IMF160	1/2" Hex Socket
...	F29A	3/8" Clutch Driver	...	FA7A	7/32" Hex Hd. Driver	X	FP32A	No. 3 PHILLIPS® Dr.	...	IMF180	9/16" Hex Socket
...	F30	19/64" Clutch Driver	...	FA7A2	7/32" Extra Bit	...	FP32A2	No. 3 Extra Bit	...	IMF200	5/8" Hex Socket
X	F42	1/4" H.D. Scr. Dr.	...	FA8A	1/4" Hex Hd. Driver	...	FP41B	No. 4 PHILLIPS® Dr.	...	IMF220	1 1/16" Hex Socket
...	F42-2	1/4" Extra Bit	...	FA8A2	1/4" Extra Bit	...	FP41B2	No. 4 Extra Bit	...	IMF240	3/4" Hex Socket
X	F52	5/16" Screw Driver	...	FA10B	5/16" Hex Hd. Driver	X	FP42B	No. 4 Long PHILLIPS® Dr.	X	PIT120	Impact Driver
...	F52-2	5/16" Extra Bit	...	FA10B2	5/16" Extra Bit	...	FP42B2	No. 4 Long Extra Bit	...		

POZIDRIV® and PHILLIPS® are registered trademarks of the Phillips Screw Co.

3/8"

CHROME UNITS

For use on
TORX® fasteners**CAUTION:** The units on this page for hand use only.**A POZIDRIV®**

The POZIDRIV® configuration is similar to the PHILLIPS® configuration, but the bits are not interchangeable.

Bit Size	Stock No.	Overall Length	Bit Stock No.	Roll Pin Stock No.
2	FPD22	2"	FPD22-2	ESD300
3	FPD32	2"	FPD32-2	ESD304
4	FPD41	1 11/16"	FPD41-2	ESD304

B PHILLIPS®

Fed. Specs. GGG-W-641E		Overall Length	Bit Stock No.	Roll Pin Stock No.
Bit Size	Stock No.			
2	FP22A	2"	FP22A2	ESD303
2	FP24	2 29/32"	FP24-2	ESD303
3	FP32A	2 5/16"	FP32A2	ESD300
3	FP34	2 29/32"	FP34-2	ESD300
4	FP41B	1 11/16"	FP41B2	ESD304
4	FP42B	2 9/16"	FP42B2	ESD304

206FP Set. Drivers FP22A through FP42B.**C CLUTCH-TYPE**

For clutch-type, butterfly or figure-8 screws.

Stock No.	Overall Length	Bit Diameter
F29A	1 3/4"	3/8"
F30	1 3/4"	19/64"

D STANDARD HEX HEAD

Fed. Specs. GGG-W-641E		Fits these sizes		Bit Stock No.	Roll Pin/ Set Screw Stock No.
Wrench Size	Stock No.	Overall Length	Cap Screws		
1/8"	FA4A	2 3/16"	—	1/4"	TMA4-2
9/64"	FA4.5A	2 3/32"	#8	—	TMA4.5-2
5/32"	FA5A	2 1/16"	#10	5/16"	FA5A2
3/16"	FA6A	2 1/16"	1/4"	3/8"	FA6A2
3/16"	FAL6	3 3/32"	1/4"	3/8"	FAL6-2
7/32"	FA7A	2 1/16"	—	7/16"	FA7A2
1/4"	FA8A	2 1/16"	5/16"	1/2"	FA8A2
1/4"	FAL8	3 3/32"	5/16"	1/2"	FAL8-2
5/16"	FA10B	2 1/16"	3/8"	5/8"	FA10B2
3/8"	FA12A	2 1/16"	7/16" & 1/2"	3/4"	FA12A2

208FA Set. All drivers above except FAL6 and 8.**208FAY Set.** All drivers above except FAL6 and 8, on A265 Socket Rail with clips.**210FA Set.** Drivers FA4A through FA12A.**58** PHILLIPS® and POZIDRIV® are registered trademarks of the PHILLIPS SCREW COMPANY. TORX® is a registered trademark of CAMCAR/TEXTRON.**D LONG HEX HEAD**

Wrench Size	Stock No.	Overall Length	Fits these sizes		Bit Stock No.	Roll Pin/ Stock No.
			Cap Screws	Set Screws		
1/32"	FA5L	6"	#10	5/16"	FA5L2	ESD322
3/16"	FA6L	6 5/32"	1/4"	3/8"	FA6LA2A	ESD303
7/32"	FA7L	6"	—	7/16"	FA7L2	ESD303
1/4"	FA8L	6"	5/16"	1/2"	FA8LA2A	ESD300
5/16"	FA10L	6"	3/8"	5/8"	FA10LA2A	ESD304
3/8"	FA12L	6"	7/16" & 1/2"	3/4"	FA12LA2A	ESD304

206FAL Set. Drivers FA5L through FA12L.**E STANDARD**

Fed. Specs. GGG-W-641E		Overall Length	Bit Stock No.	Roll Pin Stock No.
Blade Size	Stock No.			
1/4" x 1/32"	F23D	3"	F23D2	ESD304
5/16" x 3/64"	F25D	3"	F25D2	ESD304
3/8" x 1/16"	F31D	3 7/16"	F31D2	ESD304

F STANDARD SHORT

Blade Width	Stock No.	Overall Length	Bit Stock No.	Roll Pin Stock No.
1/4"	F42	1 13/16"	F42-2	ESD300
5/16"	F52	1 13/16"	F52-2	ESD304
3/8"	F62	1 27/32"	F62-2	ESD304

G TORX®

For striker and seat belts bolts. (1/4" drive units on page 48.)

Fastener Size	Bit Diameter	Stock No.	Overall Length	Bit Stock No.	Roll Pin Stock No.
T27	.195"	FTX27A	1 23/32"	FTX27A2	ESD300
T30	.216"	FTX30A	1 23/32"	FTX30A2	ESD300
T40	.260"	FTX40A	1 23/32"	FTX40A2	ESD300
T45	.306"	FTX45A	1 11/16"	FTX45A2	ESD304
T50	.346"	FTX50A	2 1/16"	FTX50A2	ESD304
T55	.440"	FTX55	2 9/64"	FTX55-2	ESD304

206FTX Set. Drivers FTX27A through FTX55.**H SOCKETS**

For use on TORX® style fasteners.

Fastener Size	Stock No.	Overall Length	Diameter	
			Wr. End	Dr. End
E8	FLE80	29/32"	3/8"	21/32"
E10	FLE100	29/32"	7/16"	21/32"
E12	FLE120	29/32"	9/16"	21/32"
E14	FLE140	15/16"	21/32"	21/32"

J MALE DRIVER

For use on G. M. door striker and seat belt bolts.

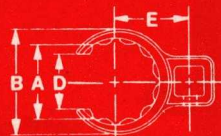
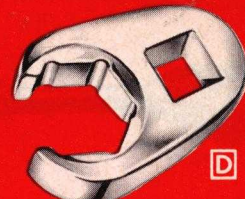
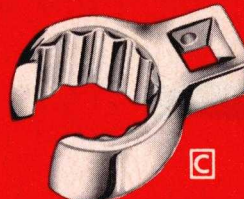
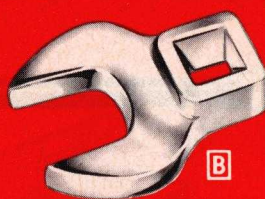
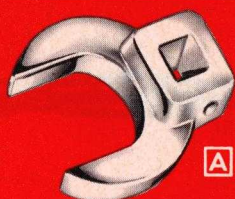
Fastener Size	Bit Diameter	Stock No.	Overall Length	Bit Stock No.	Roll Pin Stock No.
T50	.310"	FTX500	2 1/16"	FTX500-2	ESD304

K TORX® DRIVER SET

208FTXY Set. Includes TTX15A, 20B, 25B Drivers (page 48) and FTX27A, 30A, 40A, 45A and 50A Drivers (listed above) on A265 Socket Rail with clips.

CHROME CROWFOOT WRENCHES

3/8"



CAUTION: Excessive torque could result in jaw slippage and/or spreading.

A OPEN END

Fed. Spec. GGG-C-1507A, Type 2		Head Width B	Head Depth C	Total Depth D	Center to Center E
Stock Number	Wrench Size A	+ 1/16" -0	+ 1/16" -0		
FC14	7/16"	13/16"	3/16"	15/32"	21/32"
FC16	1/2"	15/16"	3/16"	15/32"	23/32"
FC18	9/16"	15/16"	3/16"	15/32"	23/32"
FC20	5/8"	11/8"	3/16"	15/32"	25/32"
FC22	11/16"	11/8"	3/16"	15/32"	51/64"
FC24	3/4"	17/16"	3/16"	17/32"	57/64"
FC26	13/16"	17/16"	3/16"	17/32"	29/32"
FC28	7/8"	19/16"	3/16"	17/32"	31/32"
FC30	15/16"	19/16"	3/16"	17/32"	31/32"
FC32	1"	13/4"	5/16"	17/32"	1 1/32"
FC34	1 1/16"	13/4"	5/16"	17/32"	13/64"
FC36	1 1/8"	17/8"	5/16"	17/32"	17/64"
FC38	1 3/16"	17/8"	5/16"	17/32"	17/64"
FC40	1 1/4"	2 1/8"	5/16"	17/32"	13/16"
FC42	1 5/16"	2 1/8"	5/16"	17/32"	13/16"
FC44	1 3/8"	2 3/8"	5/16"	17/32"	1 1/4"
FC46	1 7/16"	2 3/8"	5/16"	17/32"	1 17/64"
FC48	1 1/2"	2 9/16"	5/16"	17/32"	1 23/64"
FC50	1 9/16"	2 9/16"	5/16"	17/32"	1 23/64"
FC52	1 5/8"	2 11/16"	5/16"	17/32"	1 7/16"
FC54	1 11/16"	2 11/16"	5/16"	17/32"	1 15/32"
FC56	1 3/4"	2 7/8"	5/16"	17/32"	1 1/2"
FC58	1 13/16"	2 7/8"	5/16"	17/32"	1 1/2"
FC60	1 7/8"	3 3/16"	5/16"	17/32"	1 37/64"
FC62	1 15/16"	3 3/16"	5/16"	17/32"	1 37/64"
FC64	2"	3 7/16"	7/16"	5/8"	1 43/64"
FC66	2 1/16"	3 7/16"	7/16"	5/8"	1 11/16"
FC68	2 1/8"	3 5/8"	7/16"	5/8"	1 25/32"
FC70	2 3/16"	3 5/8"	7/16"	5/8"	1 25/32"
FC72	2 1/4"	3 7/8"	7/16"	5/8"	1 61/64"
FC74	2 5/16"	3 7/8"	7/16"	5/8"	1 61/64"
FC76	2 3/8"	4 1/8"	7/16"	5/8"	2 5/64"
FC78	2 7/16"	4 1/8"	7/16"	5/8"	2 1/8"
FC80	2 1/2"	4 5/16"	7/16"	5/8"	2 3/16"
FC82	2 9/16"	4 5/16"	7/16"	5/8"	2 3/16"
FC84	2 5/8"	4 9/16"	7/16"	5/8"	2 11/32"
FC86	2 11/16"	4 9/16"	7/16"	5/8"	2 23/64"
FC88	2 3/4"	4 3/4"	7/16"	5/8"	2 27/64"
FC90	2 13/16"	4 3/4"	7/16"	5/8"	2 31/64"
FC92	2 7/8"	5 1/8"	7/16"	5/8"	2 19/32"
FC94	2 15/16"	5 1/8"	7/16"	5/8"	2 19/32"
FC96	3"	5 1/8"	7/16"	5/8"	2 19/32"

214FC Set. Wrenches FC14 through FC40.

226FC Set. Wrenches FC14 through FC64.

242FC Set. Wrenches FC14 through FC96.

B HEAVY DUTY STANDARD OPEN END

Stock Number	Wrench Size A	Head Width B	Head Depth C	Total Depth D	Center to Center E	Overall Length
FCO12	3/8"	25/32"	11/64"	13/32"	1/2"	1 1/4"
FCO14	7/16"	29/32"	3/16"	13/32"	17/32"	1 5/16"
FCO16	1/2"	1 1/16"	13/64"	13/32"	29/32"	1 13/32"
FCO18	9/16"	1 3/16"	15/64"	13/32"	15/16"	1 33/64"
FCO20	5/8"	1 5/16"	17/64"	13/32"	1 1/32"	1 21/32"
FCO22	1 1/16"	1 7/16"	19/64"	13/32"	1 1/16"	1 23/32"
FCO24	3/4"	1 27/32"	21/64"	13/32"	1 11/64"	1 27/32"
FCO26	13/16"	1 11/16"	23/64"	13/32"	1 17/64"	2 3/64"
FCO28	7/8"	1 13/16"	25/64"	13/32"	1 25/64"	2 11/64"
FCO30	15/16"	1 15/16"	13/32"	13/32"	1 27/64"	2 19/64"
FCO32	1"	2 1/16"	13/32"	13/32"	1 33/64"	2 7/16"

211FCO Set. Wrenches FCO12 through FCO32.

C FLARE NUT WITH SIDE LOCK HOLE 12 POINT...FLANK DRIVE

Fed. Spec. GGG-C-1507A, Type 2		Head Width B	Head Depth C	Wall Opening D	Center to Center E
Stock Number	Wrench Size A	+ 1/16" -0	+ 1/16" -0		
AN8508-10	5/8"	15/16"	11/16"	15/32"	47/64"
AN8508-11	11/16"	1 1/32"	11/16"	17/32"	25/32"
AN8508-12	3/4"	1 1/8"	23/32"	9/16"	53/64"
AN8508-13	13/16"	1 13/64"	23/32"	5/8"	7/8"
AN8508-14	7/8"	1 19/64"	3/4"	11/16"	15/16"
AN8508-15	15/16"	1 3/8"	3/4"	23/32"	15/16"
AN8508-16	1"	1 29/64"	25/32"	3/4"	1 1/64"
AN8508-17	1 1/16"	1 17/32"	25/32"	25/32"	1 3/64"

208AN Set. Wrenches AN8508-10 through AN8508-17.

For 1/4" and 1/2" drive sizes, see pages 47 and 70.

D STANDARD FLARE NUT 6 POINT...FLANK DRIVE

Stock Number	Wrench Size A	Head Width B	Head Depth C	Wall Opening D	Center to Center E	Overall Length
FRH120S	3/8"	7/8"	3/8"	1/4"	9/16"	1 11/32"
FRH140S	7/16"	29/32"	3/8"	5/16"	9/16"	1 13/32"
FRH160S	1/2"	1"	3/8"	3/8"	9/16"	1 7/16"
FRH180S	9/16"	1 1/8"	7/16"	25/64"	3/4"	1 5/8"
FRH200S	5/8"	1 1/8"	7/16"	29/64"	3/4"	1 5/8"
FRH220S	11/16"	1 5/16"	1/2"	1/2"	13/16"	1 25/32"
FRH240S	3/4"	1 5/16"	1/2"	37/64"	13/16"	1 25/32"
FRH260S	13/16"	1 5/8"	9/16"	41/64"	7/8"	1 63/64"
FRH280S	7/8"	1 5/8"	9/16"	43/64"	7/8"	1 63/64"

207SFRH Set. Wrenches FRH120S through FRH240S.

209SFRH Set. Wrenches FRH120S through FRH280S.

3/8"

BLACK UNITS



A



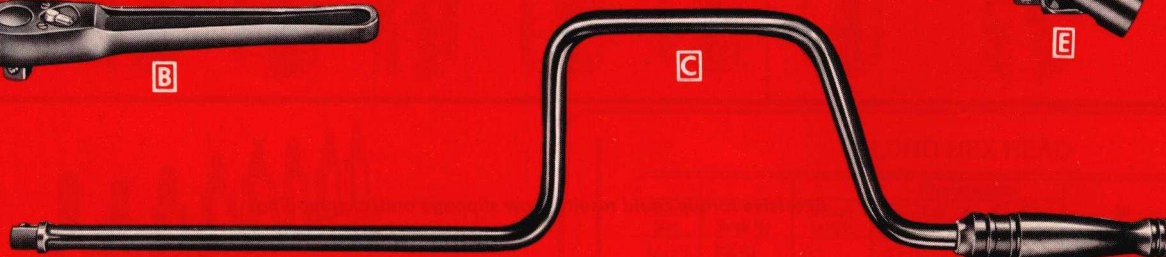
D



B



E



C



F



G



H

CAUTION: The units on this page are for hand use only.

All the units on this page are equipped with a spring-loaded friction ball locking device, except the PF720 which has a lock button.

RATCHETS

CAUTION: Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance. Replace worn parts.

20-TOOTH

Stock Number	Locking Device	Head Depth	Head Width	Overall Length
A † GF720	Friction Ball	9/16"	1 1/8"	6 15/16"
A PF720	Locking Button	9/16"	1 1/8"	6 15/16"
B † GFN720	Friction Ball	9/16"	1 1/8"	6 1/8"

† Replace gear and pawl with FN730-30 Gear and F730-4 Pawl to change from 20-tooth to 30-tooth gear action. The PF720 is available only with a 20-tooth gear action.

RATCHET REPAIR KIT

RKRFN720 Kit. For GF720 and GFN720 Ratchets.

SPEDER

Stock Number	Shank Diameter	Shank Length	Sweep Radius	Overall Length
GF4LA	3/8"	8"	3 1/2"	17 5/8"

BREAKER BAR

Stock Number	Handle Diameter	Head Width	Overall Length
GF10M	7/16"	27/32"	9 9/16"

UNIVERSAL JOINT

Stock Number	Outside Diameter	Overall Length
GFU8A	3/4"	1 15/16"

ADAPTORS

Stock Number	Female Square Drive	Male Square Drive	Overall Length
GAX1	1/2"	3/8"	1 33/64"
GAX4	1/2"	3/8"	5"
GAX12	1/2"	3/8"	12"
GAX24	1/2"	3/8"	23 1/4"
GAX36	1/2"	3/8"	36"

SLIDING T-HANDLE

Stock Number	Handle Diameter	Head Depth	Overall Length
GF5L	13/32"	3/4"	8"

EXTENSION BARS

Stock Number	Shank Diameter	Overall Length
GFX2	1/2"	3"
GFX6	1/2"	6"
GFX11	1/2"	12"

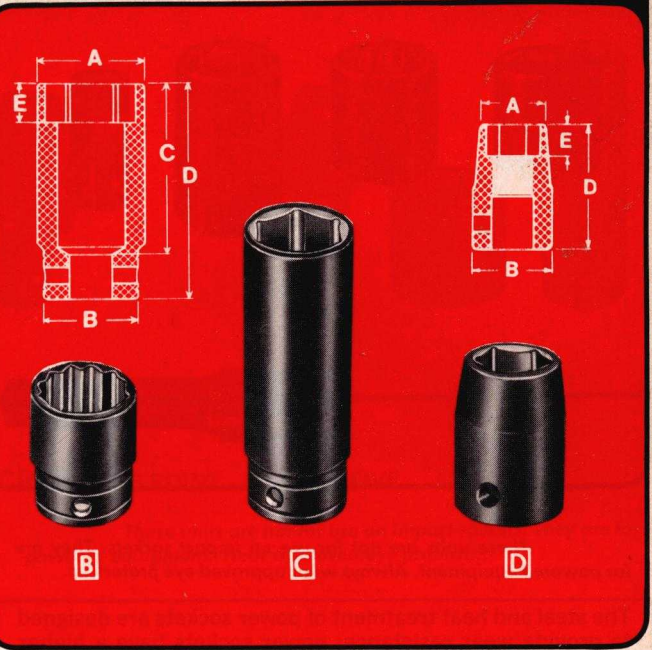
Metric 3/8" drive on pages 114-118.

BLACK SET & SOCKETS

3/8"

18 Tools

A



CAUTION: The units on this page are for hand use only, except where noted.

INDUSTRIAL SET

A 218GFB TOOL SET

Contains basic handles and sockets for nut turning jobs in maintenance and service operations. Components are illustrated separately on this and preceeding page.

Stock Number	Description	Stock Number	Description
GF4LA	Speeder	GF241	3/4" Dbl. Hex Socket
GF10M	Breaker Bar	GF261	13/16" Dbl. Hex Socket
GF720	Ratchet	GF281	7/8" Dbl. Hex Socket
GF121	3/8" Dbl. Hex Socket	GFS081	1/4" Hex Socket
GF141	7/16" Dbl. Hex Socket	GFS101	5/16" Hex Socket
GF161	1/2" Dbl. Hex Socket	GFU8A	Universal Joint
GF181	9/16" Dbl. Hex Socket	GFX2	3" Extension Bar
GF201	5/8" Dbl. Hex Socket	GFX6	6" Extension Bar
GF221	11/16" Dbl. Hex Socket	GFX11	12" Extension Bar
		KRA281	Metal Case

218GF Set. Above set without box.

B STANDARD SOCKETS 12 POINT...FLANK DRIVE

Wrench Size	Stock No.	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
† 1/4"	GFS081	25/64"	21/32"	7/16"	29/32"	7/32"
† 5/16"	GFS101	29/64"	21/32"	7/16"	29/32"	7/32"
3/8"	GF121	17/32"	21/32"	7/16"	29/32"	9/32"
7/16"	GF141	5/8"	21/32"	7/16"	29/32"	9/32"
1/2"	GF161	23/32"	21/32"	1/2"	15/16"	5/16"
9/16"	GF181	25/32"	11/16"	1/2"	15/16"	11/32"
5/8"	GF201	27/32"	49/64"	9/16"	1"	3/8"
11/16"	GF221	59/64"	27/32"	5/8"	1 1/16"	13/32"
3/4"	GF241	1"	29/32"	5/8"	1 3/32"	13/32"
13/16"	GF261	1 5/64"	31/32"	11/16"	1 5/32"	15/32"
7/8"	GF281	1 5/32"	1 1/16"	11/16"	1 5/32"	1 1/2"

† 6 point.

211GF Set. Sockets GFS081 through GF281.

211GFY Set. Sockets GFS081 through GF281 on A269 Socket Rail with clips.

C DEEP SOCKETS 6 POINT...FLANK DRIVE

Wrench Size	Stock No.	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
1/4"	GSFS081	25/64"	11/16"	1 11/16"	2 1/8"	7/32"
5/16"	GSFS101	29/64"	11/16"	1 11/16"	2 1/8"	9/32"
3/8"	GSFS121	17/32"	21/32"	1 11/16"	2 1/8"	9/32"
7/16"	GSFS141	39/64"	21/32"	1 11/16"	2 1/8"	3/8"
1/2"	GSFS161	23/32"	43/64"	1 11/16"	2 1/8"	3/8"
9/16"	GSFS181	25/32"	23/32"	1 15/16"	2 3/8"	13/32"
5/8"	GSFS201	27/32"	51/64"	1 15/16"	2 3/8"	13/32"
11/16"	GSFS221	15/16"	7/8"	2 3/16"	2 5/8"	7/16"
3/4"	GSFS241	1"	61/64"	2 3/16"	2 5/8"	7/16"
13/16"	GSFS261	1 1/16"	1"	2 5/16"	2 3/4"	7/16"
7/8"	GSFS281	1 5/32"	1 3/32"	2 5/16"	2 3/4"	1/2"

211GSFS Set. Sockets GSFS081 through GSFS281.

211GSFSY Set. Sockets GSFS081 through GSFS281 on A269 Socket Rail with clips.

D MAGNETIC SOCKETS 6 POINT...FLANK DRIVE

Removable magnet. Replacement socket blanks are available. *These can be used on powered attachments.*

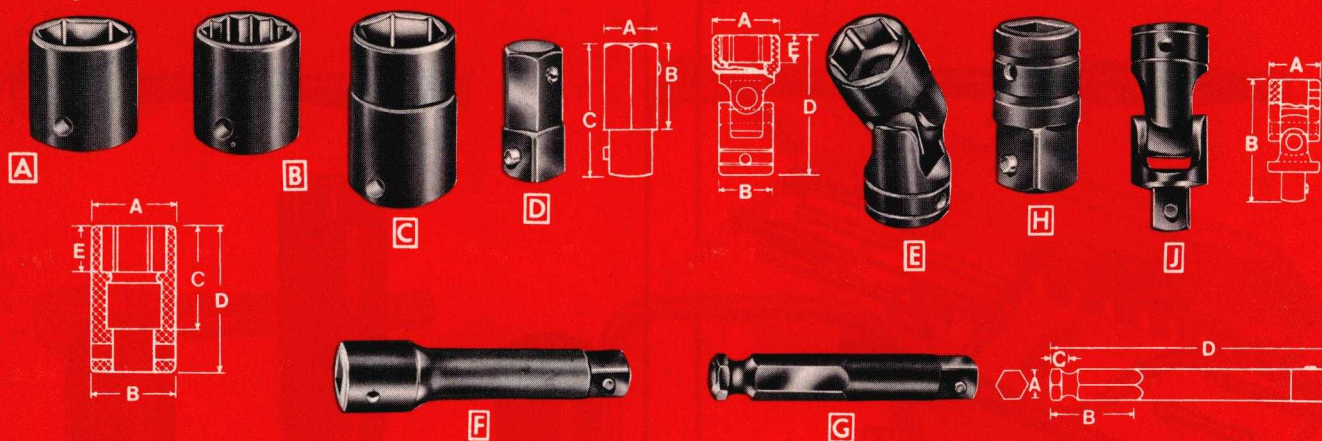
Wrench Size	Stock Number	Outside Diameter		Overall Length D	Broach Depth E	Replacement Socket Less Magnet
		Socket End A	Handle End B			
5/16"	MFIM101	15/32"	11/16"	1 1/16"	3/32"	MFIM101-1
3/8"	MFIM121	17/32"	11/16"	1 1/16"	1/8"	MFIM121-1
7/16"	MFIM141	5/8"	11/16"	1 1/16"	9/64"	MFIM141-1
1/2"	MFIM161	25/32"	25/32"	1 1/16"	5/32"	MFIM161-1
9/16"	MFIM181	7/8"	7/8"	1 1/16"	5/32"	MFIM181-1

205MFIM Set. Sockets MFIM101 through MFIM181.

Metric 3/8" drive on pages 114-118.

3/8"

BLACK POWER UNITS



CAUTION: These units are not for use on impact sockets. They are for powered equipment. Always wear approved eye protection.

The steel and heat treatment of power sockets are designed to provide wear resistance; power sockets have a higher hardness than impact sockets. Power sockets are used on power nut runners, multi-spindle machines and angle head nut drivers. Standard power sockets and "FLEXOCKETS" are available in both single and double hex (metric and inch-size) in all popular drive and wrench sizes.

STANDARD

A 6 POINT...FLANK DRIVE

Fed. Spec. GGG-W-660A		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock Number	Socket End A	Handle End B			
5/16"	PF100	1/2"	11/16"	7/16"	7/8"	3/16"
11/32"	PF110	17/32"	11/16"	7/16"	7/8"	9/32"
3/8"	PF120	9/16"	11/16"	7/16"	7/8"	3/16"
7/16"	PF140	21/32"	3/4"	7/16"	15/16"	9/32"
1/2"	PF160	3/4"	3/4"	7/16"	15/16"	9/32"
9/16"	PF180	13/16"	13/16"	7/16"	15/16"	9/32"
5/8"	PF200	29/32"	29/32"	7/16"	15/16"	9/32"
11/16"	PF220	31/32"	31/32"	9/16"	1"	3/8"
3/4"	PF240	13/64"	13/64"	9/16"	1 1/16"	13/32"

209PF Set. Sockets PF100 thru PF240.

209PFY Set. Sockets PF100 thru PF240 on A269 Socket Rail with clips.

B 12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Socket End A	Handle End B	Bolt Clearance Depth C	Overall Length D	Broach Depth E
3/8"	PFDH120	9/16"	11/16"	7/16"	7/8"	13/16"
7/16"	PFDH140	21/32"	3/4"	7/16"	15/16"	9/32"
1/2"	PFDH160	3/4"	3/4"	7/16"	15/16"	9/32"
9/16"	PFDH180	13/16"	13/16"	7/16"	15/16"	9/32"
5/8"	PFDH200	29/32"	29/32"	7/16"	15/16"	9/32"

205PFDH Set. Sockets PFDH120 thru PFDH200.

C BOLT CLEARANCE

6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Socket End A	Handle End B	Bolt Clearance Depth C	Overall Length D	Broach Depth E
3/8"	SPF120	9/16"	11/16"	1 1/16"	1 1/2"	9/32"
7/16"	SPF140	21/32"	3/4"	1 1/16"	1 1/2"	21/64"
1/2"	SPF160	3/4"	3/4"	1 1/16"	1 1/2"	3/8"
9/16"	SPF180	13/16"	13/16"	1 1/16"	1 1/2"	27/64"
5/8"	SPF200	29/32"	15/16"	1 1/16"	1 1/2"	15/32"

205SPF Set. Sockets SPF120 thru SPF200.

D HEX-TO-SQUARE ADAPTOR

Stock Number	Hex. Size A	Hex. Length B	Overall Length C
A3081A	7/16"	5/8"	1 1/16"

E "FLEXOCKETS"
6 POINT...FLANK DRIVE

Wrench Size	Stock No.	Outside Diameter		Overall Length D	Broach Depth E
		Socket End A	Handle End B		
7/16"	PFU14A	5/8"	1 1/16"	1 37/64"	9/32"
1/2"	PFU16C	23/32"	1 1/16"	1 5/8"	5/16"
9/16"	PFU18C	13/16"	3/4"	1 25/32"	5/16"
5/8"	PFU20C	7/8"	3/4"	1 53/64"	1 1/32"

204PFU Set. "FLEXOCKETS" PFU14A thru PFU20C.

F EXTENSION BARS

Fed. Spec. GGG-W-660A	Shank Diameter	Overall Length
Stock Number		
PF2	1/2"	3"
PF6	1/2"	6"
PF11	1/2"	12"

G HEX SHANKS

Stock Number	Hex End A	Length of Hex B	Recess from End C	Overall Length D
A3001A	7/16"	1 1/4"	1/4"	2 3/4"
A3002A	7/16"	1 1/4"	1/4"	5"
A3017A	7/16"	1 1/4"	1/4"	1 3/4"

H ADAPTORS

Fed. Spec. GGG-W-660A		Square Drive		Outside Diameter	Overall Length
Stock No.		Female End	Male End		
PA2		3/8"	1/2"	11/16"	15/16"
PA4		1/2"	3/8"	15/16"	1 15/32"

J UNIVERSAL JOINT

Stock Number	Outside Dia. A	O.L. B
PFU8A (Locking button)	3/4"	1 55/64"



K SPARK PLUG BALL-JOINT "FLEXOCKETS"
For use with air ratchets.

Stock Number	Socket Size	Overall Length	Rubber Insert
S9709B	13/16"	3 23/32"	S9705A2
S9710A	5/8"	3 39/64"	S9706-2B

Metric 3/8" drive on pages 114-118.

BLACK POWER & IMPACT UNITS

3/8"



POWER SOCKETS FOR SELF-TAP SCREWS...6 POINT...FLANK DRIVE

These sockets are made from high alloy, low carbon steel. They are case-hardened and heat treated to obtain optimum high surface hardness for wear resistance and core toughness for strength when driving self-tapping screws.

A STANDARD

Wrench Size	Stock Number	Outside Diameter		Overall Length D	Broach Depth E
		Socket End A	Handle End B		
5/16"	FIM100	31/64"	11/16"	7/8"	3/16"
3/8"	FIM120	37/64"	11/16"	7/8"	7/32"
7/16"	FIM140	21/32"	3/4"	7/8"	1/4"
1/2"	FIM160	3/4"	3/4"	7/8"	9/32"
9/16"	FIM180	7/8"	7/8"	7/8"	5/16"

205FIM Set. Sockets FIM100 thru FIM180.

CAUTION: These units are not for use on impact sockets. They are for powered equipment. Wear approved eye protection.

B BOLT CLEARANCE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
3/8"	SFIM120	5/8"	11/16"	11/16"	11/2"	1/4"
7/16"	SFIM140	21/32"	3/4"	11/16"	11/2"	21/64"
1/2"	SFIM160	3/4"	3/4"	11/16"	11/2"	3/8"
9/16"	SFIM180	13/16"	13/16"	11/16"	11/2"	27/64"

204SFIM Set. Sockets SFIM120 thru SFIM180.

IMPACT

Features of a Snap-on impact socket are greater wall thickness for resisting impact loads, special heat treatment for toughness and strength, a black industrial finish and the cross hole retaining feature.

CAUTION: These units are for use with impact wrenches. Approved eye protection should always be worn when using impact equipment.

C "FLEXOCKETS" 6 POINT...FLANK DRIVE

Fed. Spec. GGG-W-660A		Outside Diameter		Overall Length	Broach Depth
Wrench Size	Stock Number	Socket End	Handle End		
3/8"	IPF12	9/16"	7/8"	1 63/64"	1/4"
7/16"	IPF14	21/32"	7/8"	2 3/64"	9/32"
1/2"	IPF16	3/4"	7/8"	2 1/8"	5/16"
9/16"	IPF18	13/16"	7/8"	2 3/16"	5/16"
5/8"	IPF20	7/8"	7/8"	2 1/4"	11/32"
11/16"	IPF22	31/32"	29/32"	2 17/32"	13/32"
3/4"	IPF24	13/64"	29/32"	2 19/32"	7/16"

207IPF Set. "FLEXOCKETS" IPF12 thru IPF24.

207IPFY Set. "FLEXOCKETS" IPF12 thru IPF24 on A265 Socket Rail with clips.

D & E UNIVERSAL JOINTS

Stock Number	Outside Diameter A	Overall Length B
D IPF80 (Locking button)	1"	2 1/8"
E IPF800 (Ball)	1"	2 1/8"

F STANDARD 6 POINT...FLANK DRIVE

Fed. Spec. GGG-W-660A		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock Number	Socket End A	Handle End B			
3/8"	IMF120	9/16"	11/16"	7/16"	7/8"	3/16"
7/16"	IMF140	21/32"	3/4"	7/16"	15/16"	9/32"
1/2"	IMF160	3/4"	3/4"	7/16"	15/16"	9/32"
9/16"	IMF180	13/16"	13/16"	7/16"	15/16"	9/32"
5/8"	IMF200	29/32"	29/32"	7/16"	15/16"	9/32"
11/16"	IMF220	31/32"	31/32"	9/16"	1"	3/8"
3/4"	IMF240	13/64"	13/64"	9/16"	1 1/16"	13/32"

207IMF Set. Sockets IMF120 thru IMF240.

207IMFY Set. Sockets IMF120 thru IMF240 on A265 Socket Rail with clips.

G BOLT CLEARANCE 6 POINT...FLANK DRIVE Fed. Spec. GGG-W-660A

Wrench Size	Stock Number	Socket End A	Handle End B	Bolt Clearance Depth C	Overall Length D	Broach Depth E
3/8"	†SIMF120	9/16"	11/16"	11/16"	2 1/8"	9/32"
7/16"	†SIMF140	21/32"	3/4"	11/16"	2 1/8"	5/16"
1/2"	SIMF160	3/4"	3/4"	11/16"	2 1/8"	3/8"
9/16"	SIMF180	13/16"	13/16"	17/8"	2 3/8"	13/32"
5/8"	SIMF200	29/32"	29/32"	1 55/64"	2 3/8"	7/16"
11/16"	SIMF220	31/32"	31/32"	2 7/64"	2 5/8"	1/2"
3/4"	SIMF240	13/64"	13/64"	2 1/8"	2 5/8"	9/16"

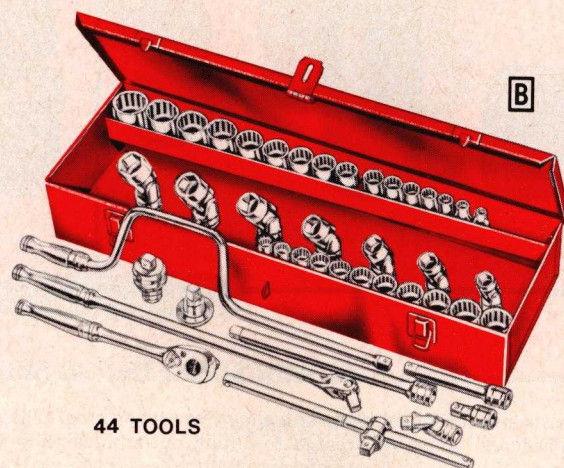
†Has turned nose.

207SIMF Set. Sockets SIMF120 thru SIMF240.

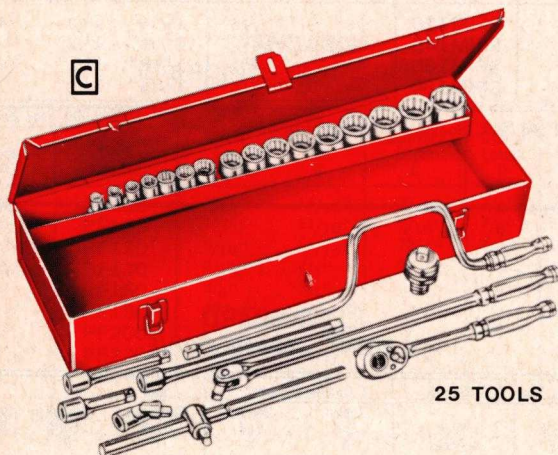
207SIMFY Set. Sockets SIMF120 thru SIMF240 on A265 Socket Rail with clips.



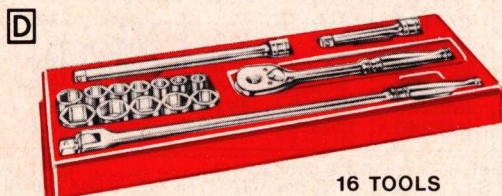
70 TOOLS



44 TOOLS



25 TOOLS



16 TOOLS

6 & 12 POINT SETS

A 370MB Set. Tools in this set are contained in the KRA21C Metal Box which is equipped with KTA3A Tote Tray.

370M Set. Tools only.

B 344AMB Set. Wide selection of tools with sockets ranging in size from 3/8" through 1 1/16"...in KRA280 Metal Box.

344AM Set. Tools only.

12 POINT SET

C 325AMB Set. Contains most handles, attachments and sockets (range 3/8" through 1 1/16") for general service operations. Complete with KRA280 Metal Box.

325AM Set. Tools only.

6 & 12 POINT SETS

D 316MSP Set. Contains attachments and sockets (range 7/16" through 1 1/8") in a plastic tray. (6 Point Set).

316MP Set. Contains same attachments as set listed above. Sockets range in size 7/16" through 1 1/8" in a plastic tray. (12 Point Set.)

CONTENTS OF SETS

Stock No.	Description	370M Set	344AM Set	325 AM Set	316 Sets MSP	MP
307SU	6 Pt. "FLEXOCKET" Set...	X	X	...	...	...
311TSY	Deep 6 Pt. Socket Set...	X	...	...	...	...
311SY	Deep 12 Pt. Socket Set...	X	X	...	...	...
312SWY	Std. 12 Pt. Socket Set...	...	...	...	...	X
312TWY	Std. 6 Pt. Socket Set...	...	...	...	X	...
316SWY	Std. 12 Pt. Socket Set...	X	X	X	...	...
A17	Drag Link Socket...	X	...	...	...	...
A80A	Stud Remover...	X	...	...	...	...
LRS70	Ratchet Spinner...	X	X	...	...	...
S4	19 1/2" Speeder...	X	X	X	...	...
S8	Universal Joint...	X	X	X	...	...

Stock No.	Description	370M Set	344AM Set	325 AM Set	316 Sets MSP	MP
S12L	12" Sliding T-Handle...	X	X	X	...	...
S67	Ratchet Adaptor...	X	X	X	...	...
S9705A	Spark Plug Socket...	X	...	...	...	...
SL710	10" Ratchet...	X	X	X	X	X
SL715	15" Ratchet...	X	...	...	...	...
SN18A	18" Breaker Bar...	X	X	X	X	X
SX2	2" Extension Bar...	X	X	...	...	...
SX3	3 1/2" Extension Bar...	X	...	X	...	...
SX5	5" Extension Bar...	X	X	X	X	X
SX10	10" Extension Bar...	X	X	X	X	X



A



B



C



D



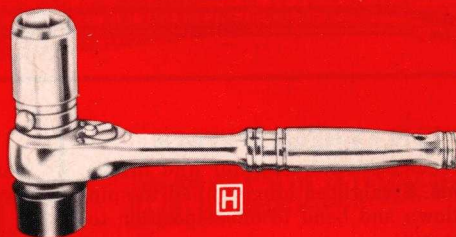
E



F



G



H



J



K

SNAP-ON RATCHET FEATURES

- **CHROME FINISH**...helps prevent rust and maintain a professional appearance.
- **HIGH GRADE ALLOY STEEL**...specially heat treated for strength and wear resistance.
- **HEAD DESIGN**...specially designed to fit into tight areas.
- **REVERSE LEVER**...provides simple one finger operation. Recessed to minimize accidentally reversing while in use.
- **DUST COVER**...carefully engineered to protect the ratcheting mechanism from contaminants, extending tool life.
- **HANDLES**...shaped and tapered to fit the hand for firm steady control and use.

A QUICK RELEASE

Provides fast, easy push button release of sockets and other attachments. Reversible action.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
SF713A	32 Tooth	25/32"	1 5/8"	10 15/16"

B COMPACT MODEL

Gets into tight working areas. New bite every 18°. Reversible action.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
SF720	20 Tooth	9/16"	1 1/8"	7 9/16"

C STANDARD HANDLE

Reversible action.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
▲ SL710	32 Tooth	25/32"	1 5/8"	10 1/4"
▲ S710	24 Tooth	25/32"	1 5/8"	10 1/4"

D LONG HANDLE

Provides extra reach and leverage. Reversible action. Fed. Spec. GGG-W-1437 applies to SL715 only.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
▲ SL715	32 Tooth	25/32"	1 5/8"	15"
▲ S715	24 Tooth	25/32"	1 5/8"	15"

E FLEX-HEAD

Provides angle flexibility for servicing hard-to-reach fasteners. The ratchet head, held in a semi-flex position with spring tension, swings to the required working position. Reversible action.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
S711A	32 Tooth	25/32"	1 5/8"	17 1/4"

F FLAT HANDLE

Works with only 15° handle swing. Reversible action.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
▲ S71	24 Tooth	3/4"	1 5/8"	9 5/8"

G SCREWDRIVER TYPE HANDLE

Rounded, plastic screwdriver type handle provides a comfortable, firm, non-slip grip. Reversible action.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
▲ LSF720	20 Tooth	9/16"	1 1/8"	8 11/32"

CAUTION: Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance. Worn parts should be replaced with contents of repair kit. Parts should not be replaced individually. Plastic handles are not intended to act as insulation. Do not use on live electric circuits.

▲ Fed. Spec. GGG-W-641E

H SCAFFOLD

Designed with a special socket and a fastener-protective plastic hammer head for scaffold assembly or disassembly. A special hole in the handle end allows the user to attach the wrench to his belt to prevent it from dropping while in use.

Stock No.	Gear Action	Socket Size	Head Width	Overall Length
S716	24 Tooth	7/8"	1 5/8"	9"

J SPINNER

Attaches to the square drive between the socket and the ratchet. Finger tip turn allows you to spin the fastener to achieve ratcheting tension. Milled edge provides a firm grip.

Stock No.	Diameter of Milled Plate	Overall Length
LRS70	1 3/4"	1 19/32"

K ADAPTOR

Converts 1/2" drive handle or SNAP-ON Torqometer® into a reverse ratcheting tool. Knurled edge provides a firm grip.

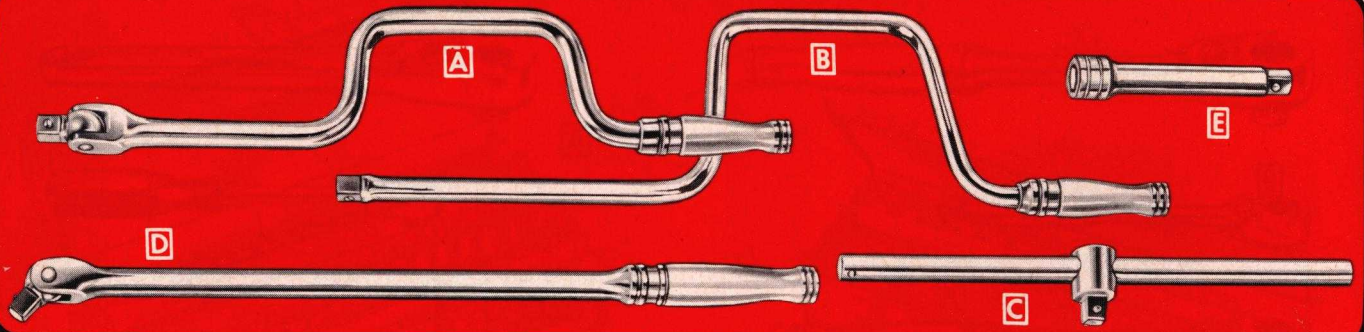
Stock No.	Gear Action	Head Depth	Head Width	Overall Length
S67	20 Tooth	29/32"	1 5/8"	2 9/16"

RATCHET REPAIR KITS

RKR71 Kit. For S71 Ratchet.
RKR710 Kit. For S710 and S715 Ratchets.
RKR711 Kit. For SL710, SL715 and S711A Ratchets.
RKRLSF720 Kit. For SF720 and LSF720 Ratchets.

1/2"

CHROME HANDLES & SOCKETS



A FLEX-HEAD SPEEDER

Combines speeder, spinner and offset handles. Straighten hinged head to spin nuts down and bend to offset position to tighten nuts.

Stock No.	Shank Diameter	Shank Length	Sweep Radius	Overall Length
SN4A	5/8"	6 3/8"	2 3/4"	17 1/4"

B STANDARD SPEEDER

Stock No.	Shank Diameter	Shank Length	Sweep Radius	Overall Length
S4	1/2"	8"	4 1/8"	19 1/2"

▲ Fed. Spec. GGG-W-641E

C SLIDING T-HANDLE

Head slides to any position.

Stock No.	Head Depth	Handle Diameter	Handle Length
▲ S12L	1 3/4"	5/8"	12"

D BREAKER BARS

Inner spring holds head in semiflex position.

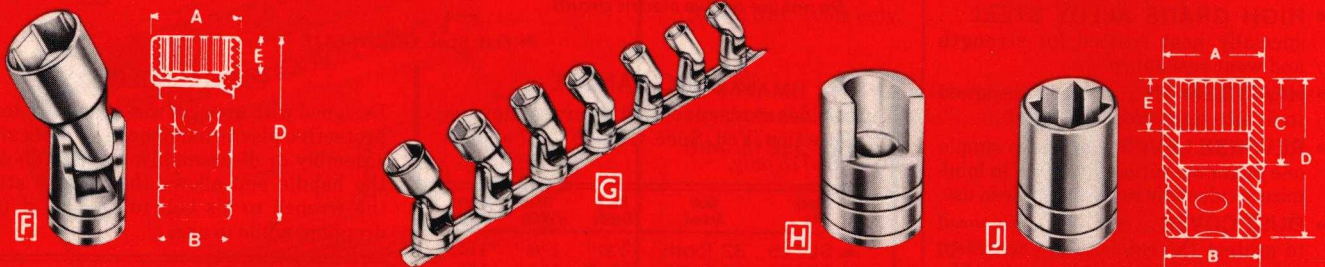
Stock No.	Head Width	Overall Length
▲ SN15A	1"	15"
▲ SN18A	1"	18"
▲ SN24B	1"	24"

RKSN18A Kit. For above breaker bars.

E EXTENSION BARS

Stock No.	Shank Diameter	Overall Length
▲ SX2	5/8"	2"
▲ SX3	5/8"	3"
▲ SX5	5/8"	5"
▲ SX10	5/8"	10"
▲ SX15	5/8"	15"
▲ SX20	5/8"	20"
▲ SX24	5/8"	24"
▲ SX36	5/8"	36"

305SX Set. Includes Extensions SX2 thru SX15 in a plastic tray.



CAUTION: The units on this page are for hand use only.

F "FLEXOCKETS" 6 POINT... FLANK DRIVE

Fed. Spec. GGG-W-641E		Outside Diameter		Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B		
9/16"	SU18	15/16"	15/16"	2 27/64"	9/16"
5/8"	SU20	15/16"	15/16"	2 15/32"	5/8"
11/16"	SU22	1 3/64"	1 3/64"	2 9/16"	1 1/16"
3/4"	SU24	1 1/8"	1 1/8"	2 7/8"	3/4"
13/16"	SU26	1 3/16"	1 1/8"	2 15/16"	13/16"
7/8"	SU28	1 1/4"	1 1/8"	2 15/16"	7/8"
15/16"	SU30	1 5/16"	1 1/8"	3"	15/16"

307SU Set. "FLEXOCKETS" SU18 thru SU30.

307SUB Set. "FLEXOCKETS" SU18 thru SU30 in KRA206A Metal Box (p.23).

307SUY Set. "FLEXOCKETS" SU18 thru SU30 on A269 Socket Rail with clips.

H SOCKETS FOR "WEATHERHEAD" FITTINGS

For air and hydraulic brake lines in trucks, buses, aircraft, off-the-road machinery, etc. (Also see 3/8" drive units on page 57.)

Wrench Size	Stock No.	Maximum O.D.	Overall Length
7/8"	WH280	1 3/8"	1 13/16"
29/32"	WH290	1 7/16"	1 13/16"
15/16"	WH300	1 1/2"	1 13/16"

J DOUBLE SQUARE SOCKETS

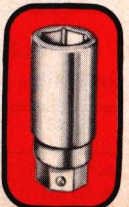
Fed. Spec. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B			
3/8"	SW412	23/32"	7/8"	7/8"	1 1/2"	5/16"
7/16"	SW414	51/64"	7/8"	7/8"	1 1/2"	3/8"
1/2"	SW416	29/32"	7/8"	7/8"	1 1/2"	13/32"
9/16"	SW418	31/32"	29/32"	7/8"	1 1/2"	7/16"
5/8"	SW420	1 1/16"	1"	7/8"	1 1/2"	1/2"
11/16"	SW422	1 3/16"	1 1/8"	7/8"	1 1/2"	1/2"
3/4"	SW424	1 9/32"	1 3/16"	7/8"	1 1/2"	9/16"
13/16"	SW426	1 7/16"	1 3/8"	1"	1 5/8"	5/8"
7/8"	SW428	1 1/2"	1 7/16"	1 1/8"	1 3/4"	5/8"
15/16"	SW430	1 5/8"	1 9/16"	1 1/8"	1 13/16"	1 1/16"
1"	SW432	1 11/16"	1 5/8"	1 1/4"	1 7/8"	1 1/16"

311ASQ Set. Sockets SW412 thru SW432.

311ASQY Set. Sockets SW412 thru SW432 above on A267 Socket Rail with clips.

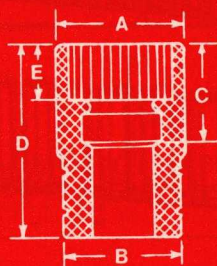
STANDARD SPARK PLUG SOCKETS 6 POINT... FLANK DRIVE

Stock Number	Socket Size	Male Hex	Overall Length	Rubber Insert
S9705A	13/16"	7/8"	2 1/2"	S9705A2
S9712	7/8"	7/8"	3 1/4"	S9712-2



STANDARD CHROME SOCKETS

1/2"



CAUTION: The units on this page are for hand use only.

A STANDARD 6 POINT...FLANK DRIVE

Fed. Spec. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B			
3/8"	TW121	9/16"	7/8"	7/8"	1 1/2"	5/16"
7/16"	TW141	41/64"	7/8"	7/8"	1 1/2"	25/64"
1/2"	TW161	23/32"	7/8"	7/8"	1 1/2"	7/16"
9/16"	TW181	51/64"	7/8"	7/8"	1 1/2"	7/16"
5/8"	TW201	29/32"	7/8"	7/8"	1 1/2"	7/16"
11/16"	TW221	31/32"	29/32"	7/8"	1 1/2"	1/2"
3/4"	TW241	13/64"	31/32"	7/8"	1 1/2"	9/16"
13/16"	TW261	1 1/8"	1 1/16"	7/8"	1 1/2"	9/16"
7/8"	TW281	13/16"	1 1/8"	7/8"	1 1/2"	9/16"
15/16"	TW301	19/32"	13/16"	7/8"	1 1/2"	9/16"
1"	TW321	1 11/32"	1 1/4"	7/8"	1 1/2"	9/16"
1 1/16"	TW341	17/16"	1 3/8"	1"	1 5/8"	5/8"
1 1/8"	TW361	1 1/2"	1 7/16"	1 1/8"	1 3/4"	11/16"
13/16"	TW381	1 5/8"	1 9/16"	1 1/8"	1 3/4"	3/4"
1 1/4"	TW401	1 11/16"	1 5/8"	1 1/4"	1 7/8"	3/4"
1 5/16"	TW421	1 3/4"	1 11/16"	1 1/4"	1 7/8"	13/16"
1 3/8"	TW441	1 13/16"	1 3/4"	1 7/16"	2 1/16"	15/16"
1 7/16"	TW461	1 15/16"	1 7/8"	1 5/8"	2 1/4"	1"
1 1/2"	TW481	2"	1 15/16"	1 5/8"	2 1/4"	1 1/16"

312TW Set. Sockets TW141 through TW361.

312TWY Set. Sockets TW141 through TW361 on A270 Socket Rail and clips.

312TWT Set. Sockets TW141 through TW361 in KTA215A Tray (p. 21).

316TW Set. Sockets TW121 through TW421.

316TWY Set. Sockets TW121 through TW421 on A266 Socket Rail and clips.

316TWT Set. Sockets TW121 through TW421 in KTA242 Tray (p. 21).

319TW Set. Sockets TW121 through TW481.

319TWY Set. Sockets TW121 through TW481 on two A270 Socket Rails with clips.

319TWT Set. Sockets TW121 through TW481 in KTA219 Tray (p. 21).

B STANDARD 12 POINT...FLANK DRIVE

Fed. Spec. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Handle End B			
3/8"	SW121	9/16"	7/8"	7/8"	1 1/2"	5/16"
7/16"	SW141	41/64"	7/8"	7/8"	1 1/2"	25/64"
1/2"	SW161	23/32"	7/8"	7/8"	1 1/2"	7/16"
9/16"	SW181	51/64"	7/8"	7/8"	1 1/2"	7/16"
19/32"	SW191	27/32"	7/8"	7/8"	1 1/2"	7/16"
5/8"	SW201	29/32"	7/8"	7/8"	1 1/2"	1/2"
11/16"	SW221	31/32"	29/32"	7/8"	1 1/2"	1/2"
3/4"	SW241	13/64"	31/32"	7/8"	1 1/2"	9/16"
13/16"	SW261	1 1/8"	1 1/16"	7/8"	1 1/2"	9/16"
7/8"	SW281	13/16"	1 1/8"	7/8"	1 1/2"	9/16"
15/16"	SW301	19/32"	13/16"	7/8"	1 1/2"	9/16"
1"	SW321	1 11/32"	1 1/4"	7/8"	1 1/2"	9/16"
1 1/16"	SW341	17/16"	1 3/8"	1"	1 5/8"	5/8"
1 1/8"	SW361	1 1/2"	1 7/16"	1 1/8"	1 3/4"	11/16"
13/16"	SW381	1 5/8"	1 9/16"	1 1/8"	1 3/4"	3/4"
1 1/4"	SW401	1 11/16"	1 5/8"	1 1/4"	1 7/8"	3/4"
1 5/16"	SW421	1 3/4"	1 11/16"	1 1/4"	1 7/8"	13/16"
1 3/8"	SW441	1 13/16"	1 3/4"	1 7/16"	2 1/16"	15/16"
1 7/16"	SW461	1 15/16"	1 7/8"	1 5/8"	2 1/4"	1"
1 1/2"	SW481	2"	1 15/16"	1 5/8"	2 1/4"	1 1/16"

312SW Set. Sockets SW141 through SW361 (except SW191).

312SWY Set. Sockets SW141 through SW361 (except SW191), on A270 Socket Rail and clips.

312SWT Set. Sockets SW141 through SW361 (except SW191), in KTA215A Tray (p. 21).

316SW Set. Sockets SW121 through SW421 (except SW191).

316SWY Set. Sockets SW121 through SW421 (except SW191), on A266 Socket Rail with clips.

316SWT Set. Sockets SW121 through SW421 (except SW191), in KTA242 Tray (p. 21).

319SW Set. Sockets SW121 through SW481 (except SW191).

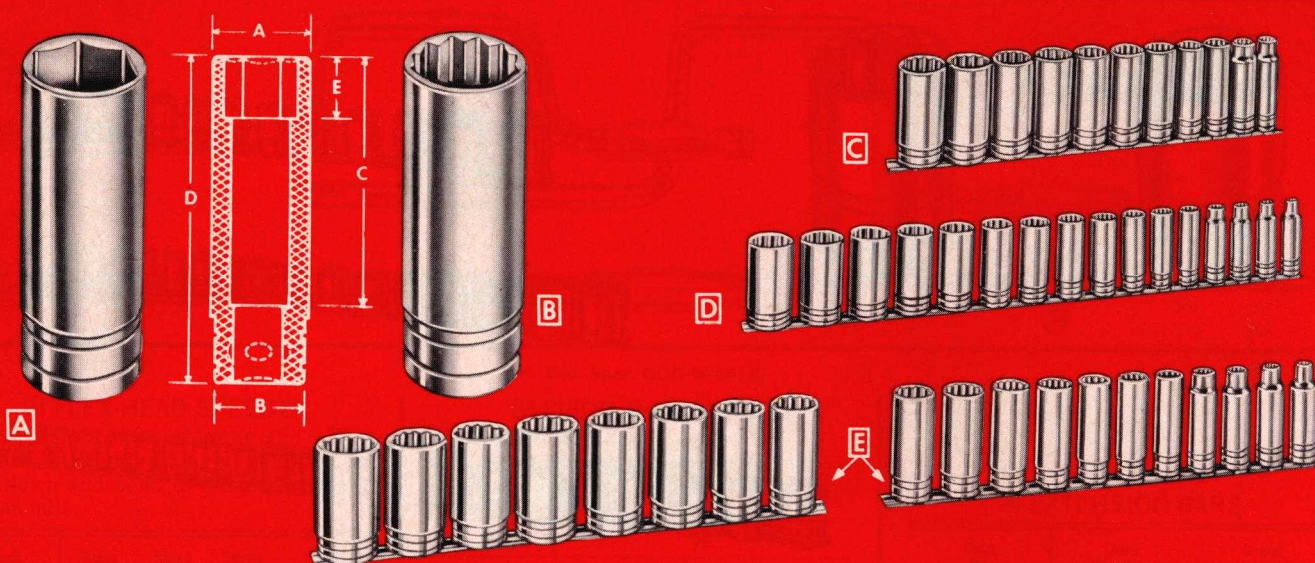
319SWY Set. Sockets SW121 through SW481 (except SW191) on two A270 Socket Rails with clips.

319SWT Set. Sockets SW121 through SW481 (except SW191) in KTA219 Tray (p. 21).

Metric 1/2" drive on pages 119-121.

1/2"

DEEP CHROME SOCKETS



CAUTION: The units on this page are for hand use only.

A DEEP 6 POINT... FLANK DRIVE

Fed. Spec. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Drive End B			
3/8"	TS121	37/64"	7/8"	25/8"	3 1/4"	5/16"
7/16"	TS141	21/32"	7/8"	25/8"	3 1/4"	11/32"
1/2"	TS161	23/32"	7/8"	25/8"	3 1/4"	3/8"
9/16"	TS181	13/16"	7/8"	25/8"	3 1/4"	7/16"
5/8"	TS201	29/32"	7/8"	25/8"	3 1/4"	7/16"
11/16"	TS221	31/32"	29/32"	25/8"	3 1/4"	1/2"
3/4"	TS241	13/64"	31/32"	25/8"	3 1/4"	9/16"
13/16"	TS261	11/8"	11/16"	25/8"	3 1/4"	9/16"
7/8"	TS281	13/16"	11/8"	25/8"	3 1/4"	9/16"
15/16"	TS301	19/32"	17/32"	25/8"	3 1/4"	5/8"
1"	TS321	111/32"	19/32"	25/8"	3 1/4"	5/8"
1 1/16"	TS341	17/16"	13/8"	25/8"	3 1/4"	11/16"
1 1/8"	TS361	1 1/2"	17/16"	25/8"	3 1/4"	3/4"
1 3/16"	TS381	15/8"	19/16"	25/8"	3 1/4"	3/4"
1 1/4"	TS401	111/16"	15/8"	25/8"	3 1/4"	1"
1 5/16"	TS421	13/4"	111/16"	25/8"	3 1/4"	1"
1 3/8"	TS441	113/16"	13/4"	25/8"	3 1/4"	1"
1 7/16"	TS461	115/16"	17/8"	25/8"	3 1/4"	1"
1 1/2"	TS481	2"	115/16"	25/8"	3 1/4"	1 1/16"

B DEEP 12 POINT... FLANK DRIVE

Fed. Spec. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Drive End B			
3/8"	S121	37/64"	7/8"	25/8"	3 1/4"	5/16"
7/16"	S141	21/32"	7/8"	25/8"	3 1/4"	11/32"
1/2"	S161	23/32"	7/8"	25/8"	3 1/4"	3/8"
9/16"	S181	13/16"	7/8"	25/8"	3 1/4"	7/16"
5/8"	S201	29/32"	7/8"	25/8"	3 1/4"	7/16"
11/16"	S221	31/32"	29/32"	25/8"	3 1/4"	1/2"
3/4"	S241	13/64"	31/32"	25/8"	3 1/4"	9/16"
13/16"	S261	11/8"	11/16"	25/8"	3 1/4"	9/16"
7/8"	S281	13/16"	11/8"	25/8"	3 1/4"	9/16"
15/16"	S301	19/32"	17/32"	25/8"	3 1/4"	5/8"
1"	S321	111/32"	19/32"	25/8"	3 1/4"	5/8"
1 1/16"	S341	17/16"	13/8"	25/8"	3 1/4"	11/16"
1 1/8"	S361	1 1/2"	17/16"	25/8"	3 1/4"	3/4"
1 3/16"	S381	15/8"	19/16"	25/8"	3 1/4"	3/4"
1 1/4"	S401	111/16"	15/8"	25/8"	3 1/4"	1"
1 5/16"	S421	13/4"	111/16"	25/8"	3 1/4"	1"
1 3/8"	S441	113/16"	13/4"	25/8"	3 1/4"	1"
1 7/16"	S461	115/16"	17/8"	25/8"	3 1/4"	1"
1 1/2"	S481	2"	115/16"	25/8"	3 1/4"	1 1/16"

311TS Set. Sockets TS161 through TS361.

311TSY Set. Sockets TS161 through TS361 on A267 Socket Rail with clips.

311TST Set. Sockets TS161 through TS361 in KTA240A Tray (p. 21).

316TS Set. Sockets TS121 through TS421.

316TSY Set. Sockets TS121 through TS421 on A266 Socket Rail with clips.

319TS Set. Sockets TS121 through TS481.

319TSY Set. Sockets TS121 through TS481 on two A270 Socket Rails with clips.

311S Set. Sockets S161 through S361.

311SY Set. Sockets S161 through S361 on A267 Socket Rail with clips.

311ST Set. Sockets S161 through S361 in KTA240A Tray (p. 21).

316S Set. Sockets S121 through S421.

316SY Set. Sockets S121 through S421 on A266 Socket Rail with clips.

319S Set. Sockets S121 through S481.

319SY Set. Sockets S121 through S481 on two A270 Socket Rails with clips.

CHROME UNITS/IMPACT DRIVER

1/2"



CAUTION: The units on this page are for hand use only.

▲ Fed. Specs. GGG-W-641E.

A DRAG LINK SOCKETS

Stock Number	Blade Width	Blade Thickness	Overall Length
▲ A15	1 ³ / ₁₆ "	.150"	1 ¹¹ / ₁₆ "
▲ A17	1 ⁵ / ₁₆ "	.150"	1 ¹¹ / ₁₆ "
▲ A26	3/4"	.109"	1 ¹¹ / ₁₆ "

B ADAPTORS

Stock Number	Female Square Drive	Male Square Drive	Overall Length
▲ HD1	1/2"	5/8"	1 ⁵ / ₈ "
▲ A2	3/8"	1/2"	1 ⁵ / ₁₆ "
● GAX1	1/2"	3/8"	1 ³³ / ₆₄ "
● GAX4	1/2"	3/8"	5"
● GAX12	1/2"	3/8"	12"
● GAX24	1/2"	3/8"	23 ¹ / ₄ "
● GAX36	1/2"	3/8"	36"

● Black finish. See illustration on page 71.

C UNIVERSAL JOINT

Stock Number	Outside Diameter	Overall Length
S8	29 ³² / ₃₂ "	2 ¹¹ / ₁₆ "

D PIPE PLUG SOCKET

Cummins diesel engine applications.

Stock Number	Male Square Drive	Outside Diameter	Overall Length
PPM516	1/2"	59 ⁶⁴ / ₆₄ "	1 ⁷ / ₁₆ "

E STANDARD TIP DRIVERS

Bit Size	Stock No.	Overall Length	Bit Stock No.	Roll Pin Stock No.
7/16" x .050"	SW28A	3 ¹ / ₁₆ "	SW28A2	ME2C28
1/2" x .075"	SW32A	3 ¹ / ₁₆ "	SW32A2	ME2C28
5/8" x .093"	SW40	3 ¹ / ₄ "	SW40-2	ESD311

F HEX HEAD WRENCHES

Hex Size	Stock No.	Overall Length	Bit Stock No.	Roll Pin Stock No.
5/16"	SA10A	2 ³ / ₈ "	FA10B2	ME2C28
3/8"	SA12B	2 ¹ / ₂ "	SA12B2	ME2C28
7/16"	SA14A	2 ⁷ / ₈ "	SA14A2	ESD311
1/2"	SA16A	3 ¹ / ₁₆ "	SA16A2	ESD311
9/16"	SA18A	3 ³ / ₁₆ "	SA18A2	ESD311
5/8"	SA20A	3 ¹¹ / ₃₂ "	LAW120A2	ME2C50
3/4"	SA24A	4 ¹ / ₁₆ "	LAW124A2	ME2C15

307SA Set. Wrenches SA10A thru SA24A.

307SAY Set. Wrenches SA10A thru SA24A on A265 Socket Rail with clips.

G PHILLIPS® TIP DRIVERS

Bit Size	Stock No.	Overall Length	Bit Stock No.	Roll Pin Stock No.
#3	SP32A	2 ³ / ₁₆ "	SP32A2	ME2C28
#4	SP42A	2 ⁵ / ₁₆ "	SP42A2	ME2C28

PHILLIPS® is a registered trademark of the Phillips Screw Co.

1/2" IMPACT DRIVER

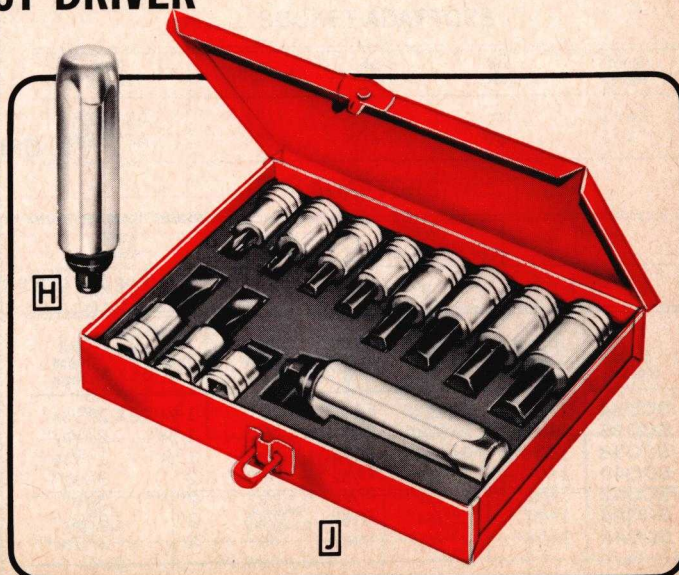
CAUTION: When using impact drivers always wear approved eye protection.

⊞ ▲ **PIT160 Impact Driver.** This 1/2" drive unit can deliver its rotary impact blow in either direction...for loosening or tightening screws and bolts.

⊞ **PIT3120AB Set.** PIT160 Impact Driver plus sockets and screw-drivers listed below in KRA142 Metal Box.

Stock No.	Description	Stock No.	Description
A26	3/4" Drag Link Soc.	SA20A	5/8" Hex Hd. Wrench
SA10A	5/16" Hex Hd. Wrench	SP32A	No. 3 PHILLIPS® Dr.
SA12B	3/8" Hex Hd. Wrench	SP42A	No. 4 PHILLIPS® Dr.
SA14A	7/16" Hex Hd. Wrench	SW28A	7/16" x .050 Soc. Dr.
SA16A	1/2" Hex Hd. Wrench	SW32A	1/2" x .075 Soc. Dr.
SA18A	9/16" Hex Hd. Wrench		

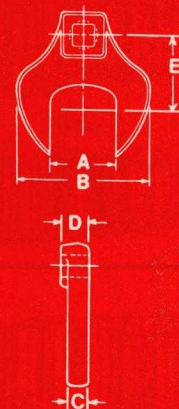
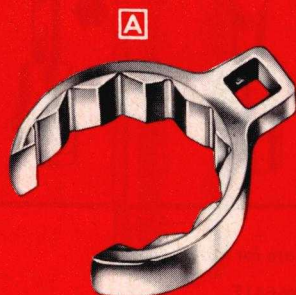
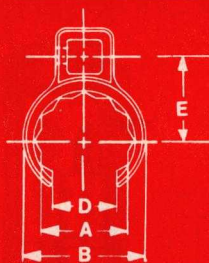
▲ Federal Spec. GGG-W-641E Type 3, Class 5 applies.



Metric 1/2" drive on pages 119-121.

1/2"

CHROME CROWFOOT WRENCHES



A FLARE NUT
12 POINT...FLANK DRIVE

CAUTION: Excessive torque could result in jaw slippage and/or spreading.

For 1/4" and 3/8" drive sizes, see pages 47 and 59.

Stock Number	Wrench Size A	Head Width B + 1/16"±0	Head Depth C + 1/16"±0	Wall Opening D	Center to Center E
AN8508-18	1 1/8"	1 5/8"	7/8"	27/32"	1 5/32"
AN8508-19	1 3/16"	1 11/16"	7/8"	29/32"	1 3/16"
AN8508-20	1 1/4"	1 25/32"	7/8"	15/16"	1 15/64"
AN8508-21	1 5/16"	1 27/32"	7/8"	31/32"	1 17/64"
AN8508-22	1 3/8"	1 15/16"	15/16"	1 1/16"	1 5/16"
AN8508-23	1 7/16"	2"	15/16"	1 1/16"	1 11/32"
AN8508-24	1 1/2"	2 1/16"	15/16"	1 1/8"	1 3/8"
AN8508-25	1 9/16"	2 5/32"	15/16"	1 5/32"	1 27/64"
AN8508-26	1 5/8"	2 7/32"	15/16"	1 7/32"	1 29/64"
AN8508-27	1 11/16"	2 5/16"	1"	1 5/16"	1 33/64"
AN8508-28	1 3/4"	2 3/8"	1"	1 5/16"	1 35/64"
AN8508-29	1 13/16"	2 15/32"	1"	1 11/32"	1 19/32"
AN8508-30	1 7/8"	2 9/16"	1 1/16"	1 3/8"	1 41/64"
AN8508-31	1 15/16"	2 5/8"	1 1/16"	1 7/16"	1 43/64"
AN8508-32	2"	2 23/32"	1 1/16"	1 9/16"	1 23/32"

Fed. Spec. GGG-C-001507 Type 1, Class 3

Stock Number	Wrench Size A	Head Width B + 1/16"±0	Head Depth C + 1/16"±0	Wall Opening D	Center to Center E
*AN8508-33	2 1/16"	2 25/32"	1 1/8"	1 9/16"	1 3/4"
*AN8508-34	2 1/8"	2 7/8"	1 1/8"	1 9/16"	1 51/64"
*AN8508-35	2 3/16"	2 15/16"	1 1/8"	1 5/8"	1 53/64"
*AN8508-36	2 1/4"	3 1/32"	1 1/8"	1 11/16"	1 7/8"
*AN8508-37	2 5/16"	3 3/32"	1 3/16"	1 23/32"	1 29/32"
*AN8508-38	2 3/8"	3 3/16"	1 3/16"	1 13/16"	1 61/64"
*AN8508-39	2 7/16"	3 1/4"	1 3/16"	1 13/16"	1 63/64"
*AN8508-40	2 1/2"	3 11/32"	1 3/16"	1 7/8"	1 21/32"
*AN8508-41	2 9/16"	3 7/16"	1 1/4"	1 7/8"	2 3/32"
*AN8508-42	2 5/8"	3 1/2"	1 1/4"	2 1/16"	2 1/8"
*AN8508-43	2 11/16"	3 9/16"	1 1/4"	2 1/16"	2 5/32"
*AN8508-44	2 3/4"	3 21/32"	1 1/4"	2 1/16"	2 13/64"
*AN8508-45	2 13/16"	3 23/32"	1 5/16"	2 3/32"	2 15/64"
*AN8508-47	2 15/16"	3 7/8"	1 5/16"	2 5/32"	2 5/16"
*AN8508-50	3 1/8"	4 1/8"	1 5/16"	2 5/16"	2 9/16"

315AN Set. Wrenches AN8508-18 thru AN8508-32.

330AN Set. Wrenches AN8508-18 thru AN8508-50.

*Standard broach.

B OPEN-END

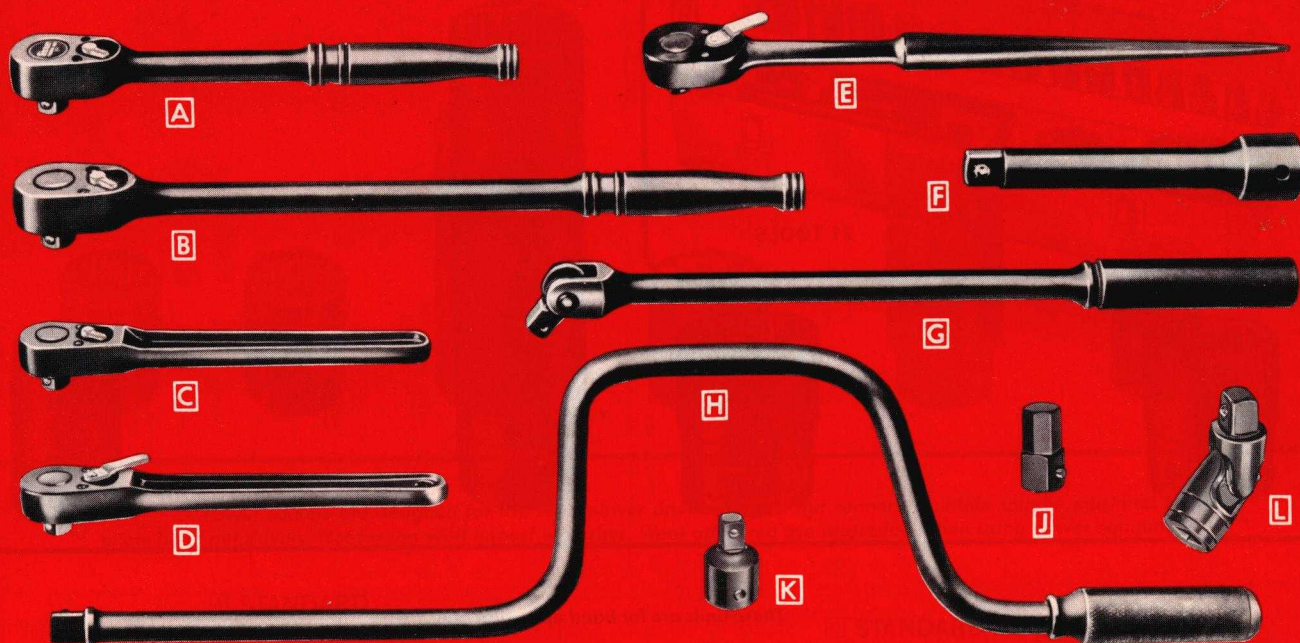
CAUTION: Excessive torque could result in jaw slippage and/or spreading.

For 3/8" drive sizes, see page 59.

Stock Number	Wrench Size A	Head Width B	Head Depth C	Total Depth D	Center to Center E	Total Overall Length
SCO34	1 1/16"	2 3/32"	23/64"	5/8"	1 3/4"	2 49/64"
SCO36	1 1/8"	2 15/64"	3/8"	5/8"	1 3/4"	2 29/32"
SCO38	1 3/16"	2 23/64"	25/64"	5/8"	1 3/4"	2 13/16"
SCO40	1 1/4"	2 15/32"	13/32"	5/8"	2"	3 3/32"
SCO42	1 5/16"	2 19/32"	27/64"	5/8"	2"	3 1/8"
SCO44	1 3/8"	2 47/64"	7/16"	5/8"	2"	3 5/32"
SCO46	1 7/16"	2 55/64"	7/16"	5/8"	2"	3 11/64"

Stock Number	Wrench Size A	Head Width B	Head Depth C	Total Depth D	Center to Center E	Total Overall Length
SCO48	1 1/2"	3 31/32"	15/32"	5/8"	2"	3 3/16"
SCO52	1 5/8"	3 15/64"	1/2"	5/8"	2"	3 17/64"
SCO54	1 11/16"	3 31/64"	33/64"	5/8"	2 1/4"	3 35/64"
SCO56	1 3/4"	3 31/64"	33/64"	5/8"	2 1/4"	3 9/16"
SCO58	1 13/16"	3 19/32"	17/32"	5/8"	2 1/4"	3 19/32"
SCO60	1 7/8"	3 47/64"	35/64"	5/8"	2 1/4"	3 5/8"
SCO64	2"	3 63/64"	37/64"	5/8"	2 1/4"	3 11/16"

314SCO Set. Wrenches SCO34 thru SCO64.



CAUTION: Units on this page are for hand use only.

CAUTION: Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance. Worn parts should be replaced with entire contents of repair kit. Parts should not be replaced individually.

RATCHETS FITTED WITH FRICTION BALL (Fed. Spec. GGG-W-641E.)

Stock No.	Gear Action	Head Width	Head Depth	Overall Length
A GS710	24 Tooth	1 5/8"	1 3/8"	10 1/4"
B GL715A	32 Tooth	1 21/32"	1 5/16"	15"
† C GS71	24 Tooth	1 21/32"	1 5/16"	9 5/8"

† Available with lock button instead of friction ball on special order only.

D LARGE REVERSE LEVER RATCHET FITTED WITH LOCKING BUTTON

Stock No.	Gear Action	Head Width	Head Depth	Overall Length
LS71	24 Tooth	1 23/32"	3/4"	9 5/8"

RATCHET REPAIR KITS
 RKR710 Kit. For GS710 Ratchet.
 RKR71 Kit. For GS71 Ratchet.
 RKR972 Kit. For GL715A Ratchet.

E "SPUD" RATCHET FITTED WITH LOCKING BUTTON

Ideal for lining up bolt holes in building and tower erections. A long reverse lever provides ease while wearing heavy work gloves.

Stock No.	Gear Action	Head Depth	Head Width	Taper Diameter	Taper Length	Overall Length
GS712	24 Tooth	3/4"	1 23/32"	3/16" to 7/8"	8"	14"

F EXTENSION BARS

Stock Number	Locking Mechanism	Shank Diameter	Overall Length
GS3A	Friction Ball	5/8"	2"
GS6	Friction Ball	5/8"	5"
GS12	Friction Ball	5/8"	10"

G BREAKER BAR

Stock Number	Handle Diameter	Head Width	Overall Length
GS15B	5/8"	1 1/8"	15"

H SPEEDER

Stock Number	Shank Diameter	Shank Length	Sweep Radius	Overall Length
KB4	1/2"	8 7/16"	4 1/8"	18 3/4"

J SOCKET ADAPTORS

Stock Number	Square Drive	Hex. Size	Hex. Length	Overall Length
A3072A	1/2"	1/2"	5/8"	1 1/4"
A3073A	1/2"	9/16"	5/8"	1 1/4"

K ADAPTORS

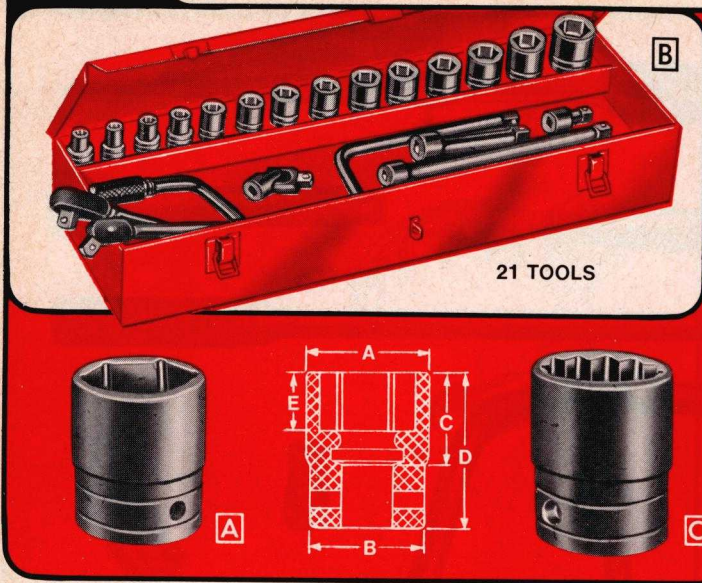
Stock Number	Female Square Drive	Male Square Drive	Overall Length
GAX1	1/2"	3/8"	1 33/64"
GAX4	1/2"	3/8"	5"
GAX12	1/2"	3/8"	12"
GAX24	1/2"	3/8"	23 1/4"
GAX36	1/2"	3/8"	36"
GLA12	1/2"	3/4"	1 29/64"
GLA62	3/4"	1/2"	2 25/64"

L UNIVERSAL JOINT

Stock Number	Locking Mechanism	Outside Diameter	Overall Length
GU8	Friction Ball	1 5/16"	2 11/16"

1/2"

BLACK SOCKETS & SET



CAUTION: These units are for hand operation only.

A STANDARD 6 POINT...FLANK DRIVE

Fed. Spec. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock Number	Socket End A	Handle End B			
3/8"	GTW121	9/16"	7/8"	7/8"	1 1/2"	5/16"
7/16"	GTW141	41/64"	7/8"	7/8"	1 1/2"	5/16"
1/2"	GTW161	23/32"	7/8"	7/8"	1 1/2"	3/8"
9/16"	GTW181	51/64"	7/8"	7/8"	1 1/2"	7/16"
5/8"	GTW201	29/32"	7/8"	7/8"	1 1/2"	1/2"
11/16"	GTW221	31/32"	29/32"	7/8"	1 1/2"	1/2"
3/4"	GTW241	13/64"	31/32"	7/8"	1 1/2"	9/16"
13/16"	GTW261	11/8"	1 1/16"	7/8"	1 1/2"	9/16"
7/8"	GTW281	13/16"	1 1/8"	7/8"	1 1/2"	9/16"
15/16"	GTW301	19/32"	13/16"	7/8"	1 1/2"	9/16"
1"	GTW321	1 11/32"	1 1/4"	7/8"	1 1/2"	9/16"
1 1/16"	GTW341	1 7/16"	1 3/8"	1"	1 5/8"	5/8"
1 1/8"	GTW361	1 1/2"	1 7/16"	1 1/8"	1 3/4"	1 1/16"
1 1/4"	GTW401	1 11/16"	1 5/8"	1 1/4"	1 7/8"	3/4"

314GTW Set. Sockets GTW121 thru GTW401.

314GTWY Set. Sockets GTW121 thru GTW401 on two A269 Socket Rails with clips.

321GTW Set. All sockets above plus GS710 Ratchet, KB4 Speeder, GS15B Breaker Bar, GS3A, GS6 and GS12 Extension Bars and GU8 Universal Joint on page 71.

B 321GTWB Set. Above set in KRA280 Metal Box (p. 23).

D BOLT CLEARANCE 6 POINT...FLANK DRIVE

Snap-on Bolt Clearance Sockets provide the extra reach needed for hard to reach fasteners.

Fed. Spec. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock Number	Socket End A	Handle End B			
1/2"	GTS161	47/64"	7/8"	2 5/8"	3 1/4"	3/8"
9/16"	GTS181	13/16"	7/8"	2 5/8"	3 1/4"	7/16"
5/8"	GTS201	57/64"	7/8"	2 5/8"	3 1/4"	7/16"
11/16"	GTS221	31/32"	29/32"	2 5/8"	3 1/4"	1/2"
3/4"	GTS241	1 1/32"	31/32"	2 5/8"	3 1/4"	9/16"

305GTS Set. Sockets GTS161 thru GTS241.

305GTSY Set. Sockets GTS161 thru GTS241 on A265 Socket Rail with clips.

C STANDARD 12 POINT...FLANK DRIVE

Fed. Spec. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock Number	Socket End A	Handle End B			
3/8"	GSW121	9/16"	7/8"	7/8"	1 1/2"	5/16"
7/16"	GSW141	41/64"	7/8"	7/8"	1 1/2"	5/16"
1/2"	GSW161	23/32"	7/8"	7/8"	1 1/2"	3/8"
9/16"	GSW181	51/64"	7/8"	7/8"	1 1/2"	7/16"
5/8"	GSW201	29/32"	7/8"	7/8"	1 1/2"	1/2"
11/16"	GSW221	31/32"	29/32"	7/8"	1 1/2"	1/2"
3/4"	GSW241	1 3/64"	31/32"	7/8"	1 1/2"	9/16"
13/16"	GSW261	1 1/8"	1 1/16"	7/8"	1 1/2"	9/16"
7/8"	GSW281	1 3/16"	1 1/8"	7/8"	1 1/2"	9/16"
15/16"	GSW301	1 9/32"	1 3/16"	7/8"	1 1/2"	9/16"
1"	GSW321	1 11/32"	1 1/4"	7/8"	1 1/2"	9/16"
1 1/16"	GSW341	1 7/16"	1 3/8"	1"	1 5/8"	5/8"
1 1/8"	GSW361	1 1/2"	1 7/16"	1 1/8"	1 3/4"	1 1/16"
1 3/16"	GSW381	1 5/8"	1 9/16"	1 1/8"	1 3/4"	3/4"
1 1/4"	GSW401	1 11/16"	1 5/8"	1 1/4"	1 7/8"	3/4"
1 5/16"	GSW421	1 3/4"	1 3/4"	1 1/4"	1 7/8"	13/16"

316GSW Set. Sockets GSW121 thru GSW421.

316GSWY Set. Sockets GSW121 thru GSW421 on two A269 Socket Rails with clips.

323GSW Set. All sockets above plus GS710 Ratchet, KB4 Speeder, GS15B Breaker Bar, GS3A, GS6 and GS12 Extension Bars and GU8 Universal Joint on page 71.

323GSWB Set. Above set in KRA280 Metal Box (p. 23).

E MAGNETIC

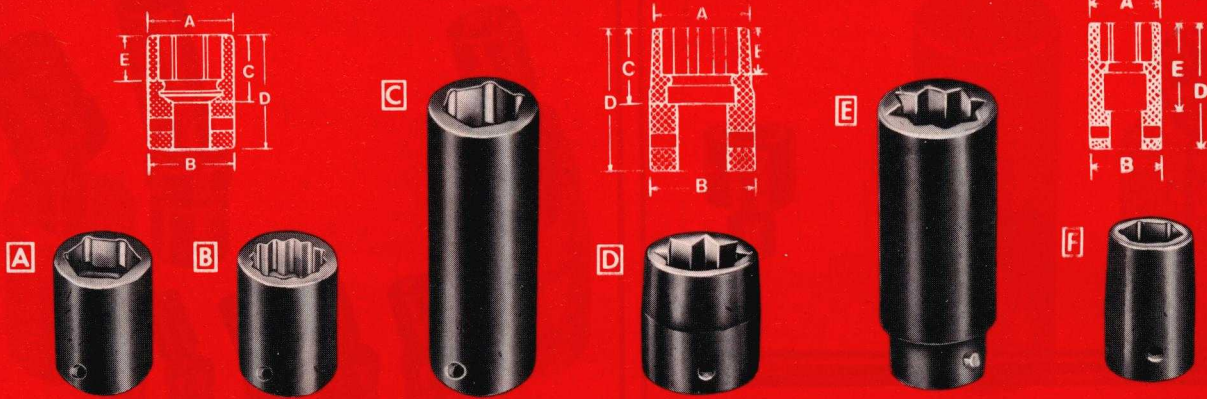
NOTE: Can be used with power equipment.

6 POINT...FLANK DRIVE

Removable magnet. Replaceable socket blanks are available.

Wrench Size	Stock Number	Outside Diameter		Overall Length D	Broach Depth E	Repl. Socket Less Mag.
		Socket End A	Handle End B			
3/8"	MPK121A	39/64"	7/8"	1 1/2"	1/8"	MPK121A1
7/16"	MPK141A	11/16"	7/8"	1 1/2"	9/64"	MPK141A1
1/2"	MPK161A	25/32"	15/16"	1 1/2"	5/32"	MPK161A1
9/16"	MPK181A	45/64"	15/16"	1 1/2"	5/32"	MPK181A1

Metric 1/2" drive on pages 119-121.



CAUTION: Power sockets are designed for use with power drivers such as nut runners, multiple spindle machines and angle head nut drivers. Not for use with impact wrenches. Wear approved eye protection when using power equipment.

A STANDARD

6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
3/8"	P120	39/64"	7/8"	7/8"	1 1/2"	9/32"
7/16"	P140	11/16"	7/8"	7/8"	1 1/2"	21/64"
1/2"	P160	25/32"	15/16"	7/8"	1 1/2"	3/8"
9/16"	P180	7/8"	15/16"	7/8"	1 1/2"	27/64"
5/8"	P200	61/64"	1"	7/8"	1 1/2"	15/32"
11/16"	P220	1 1/16"	1 1/16"	7/8"	1 1/2"	1/2"
3/4"	P240	1 1/8"	1 1/8"	7/8"	1 1/2"	1/2"
13/16"	P260	1 1/4"	1 1/4"	7/8"	1 1/2"	5/8"
7/8"	P280	1 5/16"	1 5/16"	7/8"	1 1/2"	5/8"
15/16"	SP300 1/2	1 3/8"	1 3/8"	1 1/4"	1 3/4"	3/4"
1"	SP320 1/2	1 7/16"	1 7/16"	1 1/4"	1 3/4"	3/4"
1 1/16"	SP340 1/2	1 9/16"	1 9/16"	1 3/8"	2"	51/64"

312P Set. Sockets P120 thru P340 1/2.

312PY Set. Sockets P120 thru P340 1/2 on two A269 Socket Rails with clips.

B STANDARD

12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
7/16"	PDH140	11/16"	7/8"	7/8"	1 1/2"	21/64"
1/2"	PDH160	25/32"	15/16"	7/8"	1 1/2"	3/8"
9/16"	PDH180	7/8"	15/16"	7/8"	1 1/2"	27/64"
5/8"	PDH200	61/64"	1"	7/8"	1 1/2"	15/32"
11/16"	PDH220	1 1/16"	1 1/16"	7/8"	1 1/2"	33/64"
3/4"	PDH240	1 1/8"	1 1/8"	7/8"	1 1/2"	9/16"
7/8"	PDH280	1 5/16"	1 5/16"	7/8"	1 1/2"	21/32"

307PDH Set. Sockets PDH140 thru PDH280.

307PDHY Set. Sockets PDH140 thru PDH280 on A269 Socket Rail with clips.

C BOLT CLEARANCE

6 POINT...FLANK DRIVE

Snap-on Bolt Clearance Sockets provide the extra reach needed for hard to reach fasteners.

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
3/8"	SP120	39/64"	7/8"	25/8"	3 1/4"	9/32"
7/16"	SP140	11/16"	7/8"	25/8"	3 1/4"	21/64"
1/2"	SP160	25/32"	15/16"	25/8"	3 1/4"	3/8"
9/16"	SP180	7/8"	15/16"	25/8"	3 1/4"	27/64"
5/8"	SP200	61/64"	1"	25/8"	3 1/4"	15/32"
11/16"	SP220	1 1/16"	1 1/16"	25/8"	3 1/4"	33/64"
3/4"	SP240	1 1/8"	1 1/8"	25/8"	3 1/4"	9/16"
13/16"	SP260	1 1/4"	1 1/4"	25/8"	3 1/4"	39/64"
7/8"	SP280	1 5/16"	1 5/16"	27/8"	3 1/2"	21/32"
15/16"	SP300 1/2	1 3/8"	1 3/8"	27/8"	3 1/2"	45/64"
1"	SP320 1/2	1 7/16"	1 7/16"	27/8"	3 1/2"	3/4"

311SP Set. Sockets SP120 thru SP320 1/2.

311SPY Set. Sockets SP120 thru SP320 1/2 on two A265 Socket Rails with clips.

D STANDARD DOUBLE SQUARE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
3/8"	P412	23/32"	7/8"	7/8"	1 1/2"	5/16"
7/16"	P414	13/16"	15/16"	7/8"	1 1/2"	3/8"
1/2"	P416	*29/32"	1"	7/8"	1 1/2"	7/16"
9/16"	P418	1"	1 1/8"	7/8"	1 1/2"	1/2"
5/8"	P420	17/64"	1 3/16"	7/8"	1 1/2"	1/2"
11/16"	P422	113/64"	1 1/4"	7/8"	1 1/2"	33/64"
3/4"	P424	15/16"	1 3/8"	7/8"	1 1/2"	9/16"
13/16"	P426	17/16"	1 7/16"	7/8"	1 1/2"	5/8"
7/8"	P428	1 1/2"	1 9/16"	7/8"	1 1/2"	5/8"
1"	P432	1 23/32"	1 3/4"	1 1/8"	1 3/4"	3/4"

310P Set. Sockets P412 thru P432.

310PY Set. Sockets P412 thru P432 on two A265 Socket Rails with clips.

E DEEP DOUBLE SQUARE

Feature locking button.

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
5/8"	SPR420	1 1/8"	1 1/8"	29/16"	3 1/4"	1/2"
3/4"	SPR424	1 1/4"	1 1/8"	25/8"	3 1/4"	1/2"
13/16"	SPR426	1 7/16"	1 3/8"	29/16"	3 1/4"	5/8"
7/8"	SPR428	1 9/16"	1 3/8"	225/32"	3 1/2"	21/32"
1"	SPR432	1 3/4"	1 1/2"	211/16"	3 1/2"	3/4"
1 1/16"	SPR434	1 7/8"	1 3/8"	23/4"	3 1/2"	51/64"
1 1/8"	SPR436	1 15/16"	1 1/2"	223/32"	3 1/2"	27/32"
1 1/8"	•SPRL436	1 15/16"	1 1/2"	4 27/64"	5"	27/32"

•The SPRL436 is an extra deep power socket equipped with "LOXOCKET" release for quick interchange.

F SOCKETS FOR SELF-TAP SCREWS

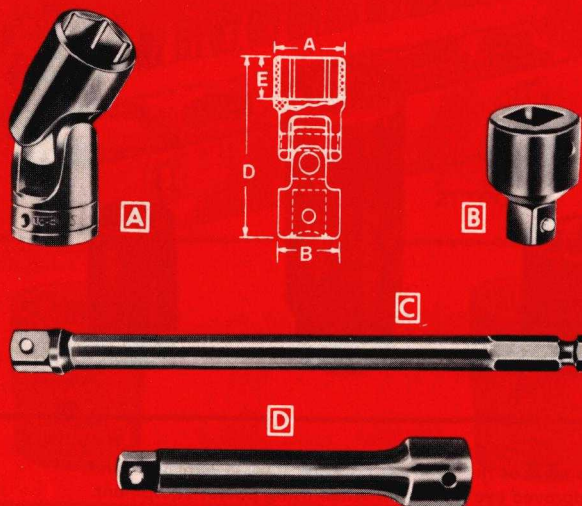
6 POINT...FLANK DRIVE

These sockets are made from high alloy, low carbon steel. They are case-hardened and heat treated to obtain high surface hardness for wear resistance and core toughness for strength when driving self-tapping screws.

Wrench Size	Stock Number	Outside Diameter		Overall Length D	Broach Depth E
		Socket End A	Handle End B		
3/8"	PK121	5/8"	7/8"	1 1/2"	7/32"
7/16"	PK141	45/64"	7/8"	1 1/2"	7/32"
1/2"	PK161	25/32"	15/16"	1 1/2"	1/4"
9/16"	PK181	7/8"	15/16"	1 1/2"	11/32"

1/2"

BLACK POWER & IMPACT UNITS



CAUTION: These units are designed for use with power drivers such as nut runners, multiple spindle machines and angle head nut drivers. They are not for use with impact wrenches. Always wear approved eye protection when using power equipment.

A POWER "FLEXOCKETS" 6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Outside Diameter		Overall Length D	Broach Depth E
		Socket End A	Handle End B		
1/2"	PU16	3/4"	15/16"	23/8"	5/16"
9/16"	PU18	27/32"	15/16"	27/16"	11/32"
5/8"	PU20	15/16"	15/16"	215/32"	3/8"
11/16"	PU22	13/64"	13/64"	21/2"	7/16"
3/4"	PU24	13/32"	1 1/8"	23/4"	1/2"

305PU Set. "FLEXOCKETS" PU16 thru PU24.

305PUY Set. "FLEXOCKETS" PU16 thru PU24 on A265 Socket Rail with clips.

B POWER ADAPTORS FITTED WITH LOCKING BUTTON

Stock Number	Square Drive		Outside Diameter	Overall Length
	Female End	Male End		
PA2	3/8"	1/2"	11/16"	15/16"
PA4	1/2"	3/8"	15/16"	115/32"
PHD1	1/2"	5/8"	1"	15/8"
PHD2	5/8"	1/2"	1 1/4"	125/32"

C POWER HEX SHANKS

Stock Number	Hex End	Length of Hex	Recess from End	Overall Length
A3011A	7/16"	1 1/4"	1/4"	23/4"
A3012A	7/16"	1 1/4"	1/4"	5"
A3018A	7/16"	1 1/4"	1/4"	1 15/16"
A3021A	5/8"	2 1/8"	5/16"	23/4"

D POWER EXTENSION BARS

Stock Number	Locking Mechanism	Shank Diameter	Overall Length
PS2	Locking Button	5/8"	2"
PS3	Locking Button	5/8"	3 1/2"
PS6	Locking Button	5/8"	5"
PS12	Locking Button	5/8"	10"



CAUTION: These units are to be used with impact wrenches. Approved eye protection should always be worn when using impact equipment.

E IMPACT "FLEXOCKETS" 6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Outside Diameter		Overall Length D	Broach Depth E
		Socket End A	Handle End B		
1/2"	IPL16A	3/4"	29/32"	229/32"	11/32"
9/16"	IPL18A	13/16"	29/32"	229/32"	11/32"
5/8"	IPL20A	7/8"	29/32"	229/32"	11/32"
11/16"	IPL22	31/32"	13/16"	31/16"	13/32"
3/4"	IPL24	1 1/32"	13/16"	31/16"	7/16"
13/16"	IPL26	1 1/8"	13/16"	31/16"	1/2"
7/8"	IPL28	13/16"	13/16"	31/16"	9/16"
15/16"	IPL30	19/32"	13/16"	33/16"	5/8"
1"	IPL32	1 11/32"	13/16"	33/16"	11/16"

305IPL Set. "FLEXOCKETS" IPL16A thru IPL24.

F 305IPLY Set. "FLEXOCKETS" IPL16A thru IPL24 on A265 Socket Rail with clips.

309IPL Set. "FLEXOCKETS" IPL16A thru IPL32.

309IPLY Set. "FLEXOCKETS" IPL16A thru IPL32 on A267 Socket Rail with clips.

G DEEP IMPACT "FLEXOCKETS" 6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Outside Diameter		Overall Length D	Broach Depth E
		Socket End A	Handle End B		
1/2"	SIP16	3/4"	13/16"	323/32"	11/32"
9/16"	SIP18	13/16"	13/16"	313/16"	11/32"
5/8"	SIP20	7/8"	13/16"	315/16"	11/32"
11/16"	SIP22	31/32"	13/16"	45/32"	13/32"
3/4"	SIP24	1 1/32"	13/16"	4 1/4"	7/16"

305SIP Set. "FLEXOCKETS" SIP16 thru SIP24.

305SIPY Set. "FLEXOCKETS" SIP16 thru SIP24 on A265 Socket Rail with clips.

H IMPACT EXTENSION BARS

Stock Number	Locking Mechanism	Shank Diameter	Overall Length
IMX32	Snap Ring	5/8"	2 41/64"
IMX62	Snap Ring	5/8"	6"

I UNIVERSAL JOINT

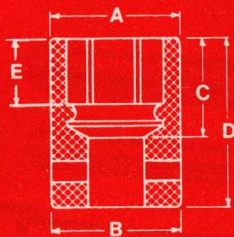
Stock Number	Locking Mechanism	Outside Diameter	Overall Length
IP80	Male (w/lock button) Female (w/lock button hole)	1 3/16" (less ring)	2 1/2"

BLACK IMPACT SOCKETS

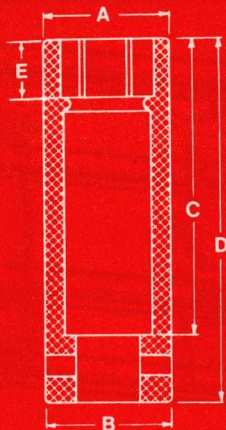
1/2"



A



B



C



D

CAUTION: These units are for use with impact wrenches. Approved eye protection should always be worn when using impact equipment.

Features of a Snap-on impact socket are greater wall thickness for resisting impact loads, special heat treatment for toughness and strength, a black industrial finish and the cross hole retaining feature.

A STANDARD 6 POINT...FLANK DRIVE

▲ Fed. Spec. GGG-W-660A		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock Number	Socket End A	Handle End B			
3/8"	▲IM120	39/64"	7/8"	7/8"	1 1/2"	9/32"
7/16"	▲IM140	11/16"	7/8"	7/8"	1 1/2"	21/64"
1/2"	▲IM160	25/32"	15/16"	7/8"	1 1/2"	3/8"
9/16"	▲IM180	7/8"	15/16"	7/8"	1 1/2"	27/64"
5/8"	▲IM200	61/64"	1"	7/8"	1 1/2"	15/32"
11/16"	▲IM220	1 1/16"	1 1/16"	7/8"	1 1/2"	1/2"
3/4"	▲IM240	1 1/8"	1 1/8"	7/8"	1 1/2"	1/2"
13/16"	▲IM260	1 1/4"	1 1/4"	7/8"	1 1/2"	5/8"
7/8"	▲IM280	15/16"	15/16"	7/8"	1 1/2"	5/8"
15/16"	▲IM300	13/8"	13/8"	1 1/4"	13/4"	3/4"
1"	▲IM320	17/16"	17/16"	1 1/4"	13/4"	3/4"
1 1/16"	▲IM340	19/16"	19/16"	1 3/8"	2"	51/64"
1 1/8"	▲IM360	15/8"	15/8"	1 3/8"	2"	51/64"
13/16"	IM380	11 1/16"	17/16"	1 3/8"	2"	25/32"
1 1/4"	▲IM400	13/4"	17/16"	1 3/8"	2"	3/4"
15/16"	IM420H	17/8"	17/16"	1 3/8"	2"	1"
13/8"	IM440	115/16"	17/16"	1 3/8"	2"	1"
17/16"	IM460	2"	1 1/2"	1 3/8"	2"	1"
1 1/2"	IM480	2 1/8"	17/16"	1 3/8"	2"	1"

C BOLT CLEARANCE 6 POINT...FLANK DRIVE

Snap-on bolt clearance sockets provide the extra reach needed for hard to reach fasteners.

▲ Fed. Spec. GGG-W-660A		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock Number	Socket End A	Handle End B			
3/8"	▲SIM120	39/64"	7/8"	25/8"	3 1/4"	9/32"
7/16"	▲SIM140	11/16"	7/8"	25/8"	3 1/4"	21/64"
1/2"	▲SIM160	25/32"	15/16"	25/8"	3 1/4"	3/8"
9/16"	▲SIM180	7/8"	15/16"	25/8"	3 1/4"	27/64"
5/8"	▲SIM200	61/64"	1"	25/8"	3 1/4"	15/32"
11/16"	▲SIM220	1 1/16"	1 1/16"	25/8"	3 1/4"	33/64"
3/4"	▲SIM240	1 1/8"	1 1/8"	25/8"	3 1/4"	9/16"
13/16"	▲SIM260	1 1/4"	1 1/4"	25/8"	3 1/4"	39/64"
7/8"	▲SIM280	15/16"	15/16"	27/8"	3 1/2"	21/32"
15/16"	▲SIM300	13/8"	13/8"	27/8"	3 1/2"	45/64"
1"	▲SIM320	17/16"	17/16"	27/8"	3 1/2"	3/4"
1 1/16"	▲SIM340	19/16"	19/16"	2 11/16"	3 1/2"	51/64"
1 1/8"	▲SIM360	15/8"	15/8"	2 11/16"	3 1/2"	51/64"
13/16"	SIM380	1 11/16"	17/16"	2 11/16"	3 1/2"	25/32"
1 1/4"	▲SIM400	13/4"	17/16"	2 11/16"	3 1/2"	7/8"
15/16"	SIM420H	1 13/16"	17/16"	2 11/16"	3 1/2"	1"

309SIM Set. Sockets SIM160 thru SIM320.

309SIMY Set. Sockets SIM160 thru SIM320 on A270 Socket Rail with clips.

311SIM Set. Sockets SIM120 thru SIM320.

311SIMY Set. Sockets SIM120 thru SIM320 on A267 Socket Rail with clips.

316SIM Set. Sockets SIM120 thru IM480.

316SIMY Set. Sockets SIM120 thru IM480 on two A270 Socket Rails with clips.

B STANDARD 12 POINT...FLANK DRIVE

		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock Number	Socket End A	Handle End B			
3/8"	IMD120	39/64"	7/8"	7/8"	1 1/2"	9/32"
7/16"	IMD140	45/64"	7/8"	7/8"	1 1/2"	21/64"
1/2"	IMD160	25/32"	15/16"	7/8"	1 1/2"	3/8"
9/16"	IMD180	7/8"	15/16"	7/8"	1 1/2"	27/64"

A172A Bung Socket. For screw-in bungs. Use with a 1/2" drive ratchet or impact wrench. This socket fits around the outside of small bungs and the inside of large bungs.



CAUTION: Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance. Worn parts should be replaced with entire contents of repair kit.

A L72T Ratchet Head. Requires only 12° swing. Reversible action. 32 tooth gear action. Head depth 1 1/8", head width 2 9/16", overall length 6"

RKR980 Ratchet Repair Kit for L72T Ratchet Head.

HANDLES

Fitted with locking button. L72RJ and L72RL have knurled handle grips. Handle diameters 1 3/16". Fed. Spec. GGG-W-641E applies to L72H only.

Stock No.	O.L.	Stock No.	O.L.	Stock No.	O.L.
B L72H	20"	C L72RJ	20"	D L72RL	35"

COMPLETE RATCHETS

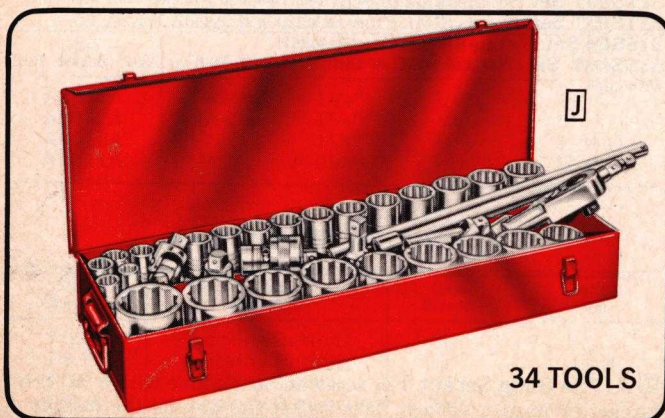
COMPLETE TOOL		HEAD ONLY			HANDLE ONLY		
Stock Number	Overall Length	Stock Number	Head Length	Head Width	Stock Number	Handle Length	Handle Diameter
A & B L72TH	24"	L72T	6"	2 9/16"	L72H	20"	1 3/16"
A & C L72TJ	24"	L72T	6"	2 9/16"	L72RJ	20"	1 3/16"
A & D L72TK	39"	L72T	6"	2 9/16"	L72RL	35"	1 3/16"

SLIDING HEAD

Can be used with L72H, L72RJ or L72RL Handles.

Fed. Spec. GGG-W-641E	Head Diameter	Head Depth
Stock No. L52B	1 1/2"	2 9/16"

E L52BH Complete 20" Sliding T-Handle. Combines L72H Handle and L52B Sliding Head. Spring and ball device holds head at any point.



34 TOOLS

EXTENSION BARS

Provide extra reach. Fitted with locking button on one end. Shank diameters 1 5/16".

Stock No.	O.L.	Stock No.	O.L.
L32	3"	L62	8"
L42	5"	L122	16"

BREAKER BAR HEAD

Use with L72H, L72RJ or L72RL Handles.

Stock No.	Head Diameter	Head Length	Overall Length
L112E	1 9/16"	2 5/16"	3 43/64"

COMPLETE BREAKER BARS

COMPLETE TOOL		HEAD ONLY			HANDLE ONLY		
Stock Number	Overall Length	Stock Number	Head Length	Head Dia.	Stock Number	Handle Length	Handle Diameter
G & B L112EH	21 1/2"	L112E	2 5/16"	1 9/16"	L72H	20"	1 3/16"
G & C L112EJ	21 1/2"	L112E	2 5/16"	1 9/16"	L72RJ	20"	1 3/16"
G & D L112EL	36 1/2"	L112E	2 5/16"	1 9/16"	L72RL	35"	1 3/16"

RATCHET ADAPTOR

Stock No.	Gear Action	Head Depth	Outside Diameter	Overall Length
L672B	44 Tooth	3/4"	2 1/2"	3 15/16"

RKR881 Ratchet Repair Kit for L672B Ratchet Adaptor.

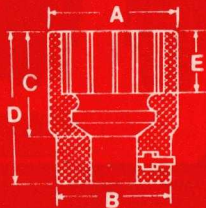
"LOXOCKET" SETS

J 434HDB Set. Includes L32 3", L62 8" and L122 16" Extensions, L52B Sliding Head, L72H 20" Handle, L72T Ratchet Head, L82A Universal Joint, L112E Breaker Bar Head, L672B Ratchet Adaptor and 426LDH Standard 12 Pt. "LOXOCKET" Set (3/4"-2 3/8") in KRA226A Metal Box.

434HD Set. Above set, tools only.

414AHDB Set. Includes L62 8", L122 16" Extensions, L72H 20" Handle, L112E Breaker Bar Head, L72T Ratchet Head and the following "LOXOCKETS": LDH342, 362, 402, 422A, 442, 462, 482, 522, 562 and 602 in KRA226A Metal Box.

414AHD Set. Above set, tools only.



All 3/4" drive chrome and black handles and sockets feature the "LOXOCKET" attaching principle. Socket is locked onto handle which has a special locking pin and can only be released by depressing a button on the socket.

CAUTION: For hand operation only.

A STANDARD 12 POINT...FLANK DRIVE

Fed. Spec. GGG-W-641E		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Drive End B			
3/4"	LDH242	1 1/8"	1 7/16"	1 1/4"	2"	1 5/32"
13/16"	LDH262	1 7/32"	1 7/16"	1 1/4"	2"	1 1/16"
7/8"	LDH282	1 5/16"	1 7/16"	1 1/4"	2"	1 1/16"
15/16"	LDH302	1 3/8"	1 7/16"	1 1/4"	2"	2 3/32"
31/32"	LDH312	1 13/32"	1 7/16"	1 1/4"	2"	2 3/32"
1"	LDH322	1 29/64"	1 1/2"	1 5/16"	2 1/16"	3/4"
1 1/16"	LDH342	1 9/16"	1 1/2"	1 3/8"	2 1/8"	3/4"
1 1/8"	LDH362	1 5/8"	1 1/2"	1 7/16"	2 3/16"	13/16"
1 3/16"	LDH382	1 11/16"	1 1/2"	1 1/2"	2 1/4"	7/8"
1 1/4"	LDH402	1 3/4"	1 1/2"	1 1/2"	2 1/4"	1 5/16"
1 5/16"	LDH422A	1 7/8"	1 5/8"	1 9/16"	2 5/16"	7/8"
1 3/8"	LDH442	1 15/16"	1 5/8"	1 9/16"	2 5/16"	7/8"
1 7/16"	LDH462	2"	1 5/8"	1 5/8"	2 3/8"	1 5/16"
1 1/2"	LDH482	2 1/8"	1 5/8"	1 11/16"	2 1/2"	1 1/16"
1 9/16"	LDH502	2 3/16"	1 3/4"	1 7/8"	2 5/8"	1 5/32"
1 5/8"	LDH522	2 1/4"	1 3/4"	1 7/8"	2 5/8"	1 5/32"
1 11/16"	LDH542	2 3/8"	1 3/4"	2"	2 3/4"	1 3/16"
1 3/4"	LDH562	2 7/16"	1 3/4"	2"	2 3/4"	1 3/16"
1 13/16"	LDH582	2 1/2"	1 3/4"	2 1/8"	2 7/8"	1 1/4"
1 7/8"	LDH602	2 9/16"	1 3/4"	2 1/4"	3"	1 5/16"
2"	LDH642	2 3/4"	1 3/4"	2 3/8"	3 1/8"	1 3/8"
2 1/16"	*LDH662	2 15/16"	1 3/4"	2 3/8"	3 1/8"	1 3/8"
2 1/8"	*LDH682	2 15/16"	1 3/4"	2 1/2"	3 1/4"	1 7/16"
2 3/16"	*LDH702	2 15/16"	1 3/4"	2 1/2"	3 1/4"	1 1/2"
2 1/4"	*LDH722	3 1/8"	1 3/4"	2 5/8"	3 3/8"	1 1/2"
2 3/8"	*LDH762	3 1/4"	1 3/4"	2 7/8"	3 5/8"	1 3/4"

*Standard broach.

426LDH Set. Sockets LDH242 thru LDH762.

426LDHY Set. Sockets LDH242 thru LDH762 on two A268 Socket Rails and clips.

C UNIVERSAL JOINT

Stock No.	Outside Diameter	Overall Length
L82A	1 9/16"	3 7/8"

B DEEP 6 POINT...FLANK DRIVE

		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock No.	Socket End A	Drive End B			
7/8"	LS282	1 5/16"	1 7/16"	2 3/4"	3 1/2"	3/4"
1 5/16"	LS302	1 3/8"	1 7/16"	2 3/4"	3 1/2"	7/8"
1"	LS322	1 29/64"	1 1/2"	2 3/4"	3 1/2"	1"
1 1/16"	LS342	1 9/16"	1 1/2"	2 3/4"	3 1/2"	1"
1 1/8"	LS362	1 5/8"	1 1/2"	2 3/4"	3 1/2"	1"
1 1/4"	LS402	1 3/4"	1 1/2"	2 3/4"	3 1/2"	1 3/16"
1 5/16"	LS422A	1 7/8"	1 5/8"	2 3/4"	3 1/2"	1"
1 3/8"	LS442	1 15/16"	1 5/8"	2 3/4"	3 1/2"	1"
1 7/16"	LS462	2"	1 5/8"	2 3/4"	3 1/2"	1 3/8"
1 1/2"	LS482	2 1/8"	1 5/8"	2 3/4"	3 1/2"	1 3/8"
1 5/8"	LS522	2 1/4"	1 3/4"	2 3/4"	3 1/2"	1 3/8"

411LS Set. Sockets LS282 thru LS522.

411LSY Set. Sockets LS282 thru LS522 on A266 Socket Rail and clips.

D DRAG LINK SOCKETS

For drag link work on trucks and buses.

Stock No.	Tip Size	Outside Diameter	Overall Length
LD138	13/64" x 1 3/8"	1 3/8"	2 3/16"
LD139	1/4" x 1 11/16"	1 11/16"	2 1/4"

E ADAPTORS

▲ Fed. Spec. GGG-W-641E.

Stock No.	Square Drive		Outside Diameter	Overall Length
	Female End	Male End		
▲ GLA12	1/2"	3/4"	1 1/8"	1 11/16"
▲ GLA32	5/8"	3/4"	1 5/16"	1 13/16"
▲ GLA52	3/4"	5/8"	1 7/16"	2 3/16"
▲ GLA62	3/4"	1/2"	1 3/8"	2 1/8"
GLA72	3/4"	1"	1 7/16"	2 9/16"
GLA124	1"	3/4"	1 13/16"	2 3/4"

3/4"

BLACK "LOXOCKET" UNITS & SETS



A RATCHET – 32 TOOTH

CAUTION: Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance. Worn parts should be replaced with entire contents of repair kit.

The GL72T features a long reverse lever for convenience when wearing heavy work gloves.

COMPLETE TOOL		HEAD ONLY			HANDLE ONLY		
Stock Number	Overall Length	Stock Number	Head Length	Head Width	Stock Number	Handle Length	Handle Diameter
GL72TH	24"	GL72T	6 1/32"	2 9/16"	GL72H	20 7/16"	1 3/16"

RKR980 Ratchet Repair Kit. For GL72T Ratchet.

B BREAKER BAR

COMPLETE TOOL		HEAD ONLY			HANDLE ONLY		
Stock Number	Overall Length	Stock Number	Head Length	Head Width	Stock Number	Handle Length	Handle Diameter
GL112EH	21 1/2"	GL112E	3 11/16"	1 9/16"	GL72H	20 7/16"	1 3/16"

C SLIDING T-HANDLE

COMPLETE TOOL		HEAD ONLY			HANDLE ONLY		
Stock Number	Overall Length	Stock Number	Head Length	Head Width	Stock Number	Handle Length	Handle Diameter
GL52BH	20 7/16"	GL52B	2 5/16"	1 1/2"	GL72H	20 7/16"	1 3/16"

D RATCHET ADAPTOR – 44 TOOTH

Stock Number	Outside Diameter	Overall Length
GL672B	2 1/2"	3 15/16"

RKR880 Ratchet Repair Kit. For GL672B Ratchet.

E STANDARD UNIVERSAL JOINT

Stock Number	Outside Diameter	Overall Length
GL82A	1 9/16"	3 7/8"

F STANDARD EXTENSION BARS

Stock Number	Shank Diameter	Overall Length
GL32	15/16"	3"
GL42	15/16"	5"
GL62	15/16"	8"
GL122	15/16"	16"

G STANDARD "LOXOCKETS" – THIN WALL 12 POINT... FLANK DRIVE

CAUTION: For hand use only.

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
7/8"	GLDH282	15/16"	1 7/16"	1 1/4"	2"	1 1/16"
15/16"	GLDH302	1 3/8"	1 7/16"	1 1/4"	2"	2 3/32"
31/32"	GLDH312	1 13/32"	1 7/16"	1 1/4"	2"	2 3/32"
1"	GLDH322	1 15/32"	1 1/2"	1 5/16"	2 1/16"	3/4"
1 1/16"	GLDH342	1 9/16"	1 1/2"	1 3/8"	2 1/8"	3/4"
1 1/8"	GLDH362	1 5/8"	1 1/2"	1 7/16"	2 3/16"	13/16"
1 3/16"	GLDH382	1 11/16"	1 1/2"	1 1/2"	2 1/4"	7/8"
1 1/4"	GLDH402	1 3/4"	1 1/2"	1 1/2"	2 1/4"	15/16"
1 5/16"	GLDH422A	1 7/8"	1 5/8"	1 9/16"	2 5/16"	1"
1 3/8"	GLDH442	1 15/16"	1 5/8"	1 9/16"	2 5/16"	15/16"
1 7/16"	GLDH462	2"	1 5/8"	1 5/8"	2 3/8"	15/16"
1 1/2"	GLDH482	2 1/8"	1 5/8"	1 3/4"	2 1/2"	1 1/16"
1 9/16"	GLDH502	2 3/16"	1 3/4"	1 7/8"	2 5/8"	1 9/32"
1 5/8"	GLDH522	2 1/4"	1 3/4"	1 7/8"	2 5/8"	1 5/32"
1 11/16"	GLDH542	2 3/8"	1 3/4"	2"	2 3/4"	1 3/16"
1 3/4"	GLDH562	2 7/16"	1 3/4"	2"	2 3/4"	1 3/16"
1 13/16"	GLDH582	2 1/2"	1 3/4"	2 1/8"	2 7/8"	1 1/4"
1 7/8"	GLDH602	2 9/16"	1 3/4"	2 1/4"	3"	1 5/16"
2"	GLDH642	2 3/4"	1 3/4"	2 3/8"	3 3/8"	1 3/8"
2 1/8"	*GLDH682	2 15/16"	1 3/4"	2 1/2"	3 1/4"	1 7/16"
2 3/16"	*GLDH702	2 15/16"	1 3/4"	2 1/2"	3 1/4"	1 1/2"
2 1/4"	*GLDH722	3 1/8"	1 3/4"	2 5/8"	3 3/8"	1 1/2"

*Standard broach.

412GLDH Set. "LOXOCKETS" GLDH282 thru GLDH482 above.

412GLDHY Set. "LOXOCKETS" GLDH282 thru GLDH482 on A266 Socket Rail and clips.

422GLDH Set. "LOXOCKETS" GLDH282 thru GLDH722.

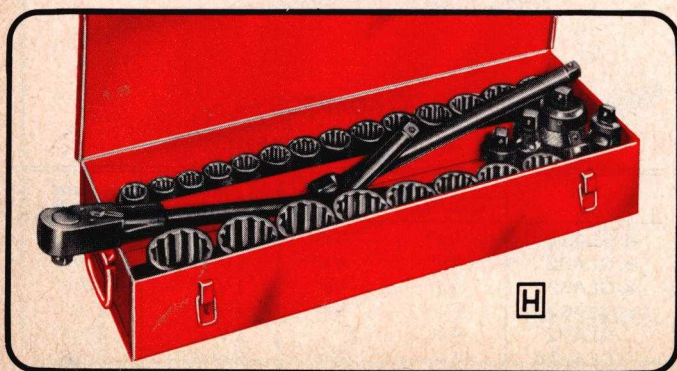
"LOXOCKET" SETS

H 430GHDB Set. Includes GL32 3", GL62 8" and GL122 16" Extensions, GL52B Sliding T-Head, GL72H 20" Handle, GL72T Ratchet Head, GL82A Universal Joint, GL672B Ratchet Adaptor, GL112E Breaker Bar Head and "LOXOCKET" Set 422GLDH (7/8"-2 1/4") in a KRA226A Metal Box.

430GHD Set. Above set, tools only.

414GHDB Set. Includes GL62 8" and GL122 16" Extensions, GL72H 20" Handle, GL72T Ratchet Head, GL112E Breaker Bar Head and "LOXOCKETS" GLDH342, 362, 402, 422A, 442, 462, 482, 522, 562 and 602 in KRA226A Metal Box.

414GHD Set. Above set, tools only.

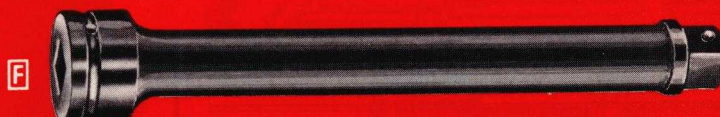
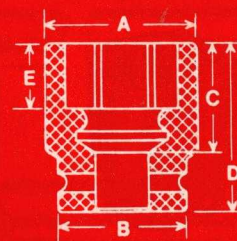


BLACK IMPACT UNITS

3/4"



G



CAUTION: These units are for use with impact wrenches. Approved eye protection should always be worn when using impact equipment.

A IMPACT UNIVERSAL JOINT

Stock No.	Outside Diameter	Overall Length
IP82	1 3/4"	3 5/32"

B IMPACT HEX HEAD DRIVERS

Wrench Size	Stock No.	Overall Length	Bit Stock No.	Roll Pin Stock No.
9/16"	LAW118A	3 9/16"	SA18A2	ESD311
5/8"	LAW120A	3 3/4"	LAW120A2	ESD306
3/4"	LAW124A	4 3/8"	LAW124A2	ESD309

ADAPTORS

Stock No.	Square Drive		Outside Diameter	Overall Length
	Female End	Male End		
C IM34A	5/8"	3/4" with pin hole	1 5/16"	1 13/16"
D IM52	3/4"	5/8" with lock button	1 5/8"	2 3/16"
E IM72	3/4"	1" with pin hole	1 5/8"	2 9/16"
E IM124A	1"	3/4" with pin hole	2 1/8"	2 13/16"

F IMPACT EXTENSION BARS

Stock No.	Shank Diameter	Overall Length
IM62A	1"	7"
IM92A	1"	10"
IM122A	1"	13"

G HEAVY DUTY IMPACT SOCKETS 6 POINT...FLANK DRIVE

These units have extra heavy walls to withstand impact use on track bolts of tractors and other heavy equipment. See page 83 for 1" square drive units.

Wrench Size	Stock No.	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
3/4"	IMT242	1 1/4"	1 5/8"	1"	1 3/4"	9/16"
13/16"	IMT262	1 7/16"	1 5/8"	1 1/8"	1 7/8"	5/8"
15/16"	IMT302	1 9/16"	1 5/8"	1 1/8"	1 7/8"	5/8"
1"	IMT322	1 5/8"	1 5/8"	1 1/4"	2"	1 1/16"
1 1/8"	IMT362	1 7/8"	1 5/8"	1 3/8"	2 1/8"	3/4"
1 5/16"	IMT422	2"	1 3/4"	1 1/2"	2 1/8"	7/8"

406IMT Set. Sockets IMT242 thru IMT422.

406IMTY Set. Sockets IMT242 thru IMT422 on A267 Socket Rail with clips.

LOCKING RINGS AND PINS

The following are required for tool use.

Use the following for units on this page as well as sockets and attachments on other 3/4" drive pages unless otherwise indicated:

IM182R Rubber Locking Ring. For all 3/4" drive units.

IM182P Steel Locking Pin. For all 3/4" drive units.

IM182PP Reinforced Plastic Locking Pin. For all 3/4" drive units.

Use the following for the IM124A Adaptor:

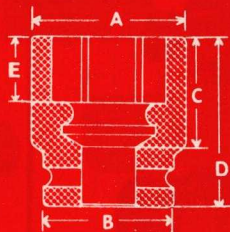
IM243R Synthetic Rubber Locking Ring.

IM243P Steel Locking Pin.

IM243PP Reinforced Plastic Locking Pin.

3/4"

BLACK IMPACT SOCKETS



CAUTION: These units are for use with impact wrenches. Approved eye protection should always be worn when using impact equipment.

A STANDARD 6 POINT...FLANK DRIVE

Wrench Size	Stock No.	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
9/16"	IM182	1"	1 5/8"	1"	1 3/4"	7/16"
5/8"	IM202	1 3/32"	1 5/8"	1"	1 3/4"	1/2"
11/16"	IM222	1 5/32"	1 5/8"	1"	1 3/4"	9/16"
3/4"	IM242	1 1/4"	1 5/8"	1"	1 3/4"	9/16"
13/16"	IM262	1 3/8"	1 5/8"	1 1/8"	1 7/8"	5/8"
7/8"	IM282	1 1/2"	1 5/8"	1 1/8"	1 7/8"	5/8"
15/16"	IM302	1 9/16"	1 5/8"	1 1/8"	1 7/8"	5/8"
1"	IM322	1 5/8"	1 5/8"	1 1/4"	2"	1 1/16"
1 1/16"	IM342	1 11/16"	1 5/8"	1 1/4"	2"	1 1/16"
1 1/8"	IM362	1 7/8"	1 5/8"	1 3/8"	2 1/8"	3/4"
1 3/16"	IM382	1 7/8"	1 5/8"	1 5/16"	2 1/8"	3/4"
1 1/4"	IM402	2"	1 3/4"	1 3/8"	2 1/8"	13/16"
1 5/16"	IM422	2 1/8"	1 3/4"	1 1/2"	2 1/4"	7/8"
1 3/8"	IM442	2 1/8"	1 3/4"	1 1/2"	2 1/4"	7/8"
1 7/16"	IM462	2 1/4"	1 3/4"	1 1/2"	2 1/4"	7/8"
1 1/2"	IM482	2 1/4"	1 3/4"	1 1/2"	2 1/4"	15/16"
1 9/16"	IM502	2 7/16"	1 3/4"	1 11/16"	2 3/8"	15/16"
1 5/8"	IM522	2 7/16"	1 3/4"	1 15/16"	2 5/8"	7/8"
1 11/16"	IM542	2 1/2"	1 3/4"	2"	2 9/16"	1"
1 3/4"	IM562	2 1/2"	1 3/4"	1 13/16"	2 9/16"	1"
1 13/16"	IM582	2 3/4"	1 3/4"	1 9/16"	2 5/8"	1 1/4"
1 7/8"	IM602	2 5/8"	1 3/4"	2"	2 3/4"	1 1/8"
2"	IM642A	2 7/8"	1 3/4"	2 1/8"	2 7/8"	1 1/8"
2 1/16"	*IM662A	3"	1 3/4"	1 5/8"	2 7/8"	1 3/16"
2 3/16"	*IM702A	3 1/4"	1 3/4"	1 13/16"	3 3/16"	1 5/16"
2 1/4"	*IM722A	3 1/4"	1 3/4"	1 13/16"	3 3/16"	1 3/8"
2 3/8"	*IM762A	3 1/2"	1 3/4"	1 15/16"	3 1/2"	1 7/16"

*Standard broach.

413IM Set. Sockets IM182 thru IM422.

413IMY Set. Sockets IM182 thru IM422 on two A267 Socket Rails with clips.

427IM Set. Sockets IM182 thru IM762A.

427IMY Set. Sockets IM182 thru IM762A on two A266 Socket Rails with clips.

B DOUBLE SQUARE

Wrench Size	Stock No.	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
3/4"	IM624	1 5/8"	1 5/8"	1"	1 3/4"	9/16"
13/16"	IM626	1 5/8"	1 5/8"	1"	1 3/4"	9/16"
7/8"	IM628	1 13/16"	1 5/8"	1 1/8"	1 7/8"	5/8"
15/16"	IM630	1 13/16"	1 5/8"	1 1/8"	1 7/8"	5/8"
1"	IM632	2"	1 3/4"	1 1/4"	2"	3/4"
1 1/16"	IM634	2"	1 3/4"	1 9/32"	2"	3/4"
1 1/8"	IM636	2 1/4"	1 3/4"	1 3/8"	2 1/8"	7/8"
1 1/16"	IM638	2 1/4"	1 3/4"	2 9/32"	2 1/8"	7/8"
1 1/4"	IM640	2 1/2"	1 3/4"	1 1/2"	2 1/4"	15/16"
1 5/16"	IM642	2 1/2"	1 3/4"	1 1/2"	2 1/4"	15/16"

410IM Set. Sockets IM624 thru IM642.

410IMY Set. Sockets IM624 thru IM642 on A270 Socket Rail with clips.

C BOLT CLEARANCE 6 POINT...FLANK DRIVE

Wrench Size	Stock No.	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
3/4"	SIM242	1 1/4"	1 5/8"	2 3/8"	3"	9/16"
13/16"	SIM262	1 3/8"	1 5/8"	2 3/8"	3"	5/8"
7/8"	SIM282	1 1/2"	1 5/8"	2 3/8"	3"	5/8"
15/16"	SIM302	1 5/8"	1 5/8"	2 3/8"	3"	5/8"
1"	SIM322	1 5/8"	1 5/8"	2 3/8"	3"	1 1/16"
1 1/16"	SIM342	1 3/4"	1 5/8"	2 3/8"	3"	1 1/16"
1 1/8"	SIM362	1 3/4"	1 5/8"	2 3/8"	3"	3/4"
1 3/16"	SIM382	2"	1 3/4"	2 1/8"	3 1/4"	3/4"
1 1/4"	SIM402	2"	1 3/4"	2 5/8"	3 1/4"	7/8"
1 5/16"	SIM422	2 1/8"	1 3/4"	2 5/8"	3 1/4"	7/8"
1 3/8"	SIM442	2 1/8"	1 3/4"	2 5/8"	3 1/4"	7/8"
1 7/16"	SIM462	2 1/4"	1 3/4"	2 7/8"	3 1/2"	7/8"
1 1/2"	SIM482	2 1/4"	1 3/4"	2 7/8"	3 1/2"	15/16"
1 9/16"	SIM502	2 7/16"	1 3/4"	2 13/16"	3 1/2"	15/16"
1 5/8"	SIM522	2 7/16"	1 3/4"	2 1/2"	3 1/2"	1"
1 11/16"	SIM542	2 1/2"	1 3/4"	2 7/16"	3 1/2"	1 1/8"
1 3/4"	SIM562	2 5/8"	1 3/4"	2 7/16"	3 1/2"	1 1/4"
1 13/16"	SIM582	2 3/4"	1 3/4"	2 13/16"	3 3/4"	1 5/16"
1 7/8"	SIM602	2 3/4"	1 3/4"	2 13/16"	3 3/4"	1 5/16"
2"	SIM642A	2 7/8"	1 3/4"	2 13/16"	3 3/4"	1 5/16"

413SIM Set. Sockets SIM242 thru SIM482.

413SIMY Set. Sockets SIM242 thru SIM482 on two A267 Socket Rails with clips.

420SIM Set. Sockets SIM242 thru SIM642A.

420SIMY Set. Sockets SIM242 thru SIM642A on two A266 Socket Rails with clips.

D STANDARD

12 POINT...FLANK DRIVE

Wrench Size	Stock No.	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
5/8"	IMD202	1 3/32"	1 5/8"	1"	1 3/4"	1/2"
11/16"	IMD222	1 5/32"	1 5/8"	1"	1 3/4"	9/16"
3/4"	IMD242	1 1/4"	1 5/8"	1"	1 3/4"	9/16"
13/16"	IMD262	1 3/8"	1 5/8"	1 1/8"	1 7/8"	5/8"
7/8"	IMD282	1 1/2"	1 5/8"	1 1/8"	1 7/8"	5/8"
1"	IMD322	1 5/8"	1 5/8"	1 1/4"	2"	1 1/16"
1 1/8"	IMD362	1 7/8"	1 5/8"	1 3/8"	2 1/8"	3/4"
1 1/4"	IMD402	2"	1 3/4"	1 3/8"	2 1/2"	13/16"
1 3/8"	IMD442	2 1/8"	1 3/4"	1 1/2"	2 1/4"	7/8"
1 1/2"	IMD482	2 1/4"	1 3/4"	1 1/2"	2 1/4"	15/16"
1 5/8"	IMD522	2 7/16"	1 3/4"	1 15/16"	2 5/8"	7/8"
1 3/4"	IMD562	2 1/2"	1 3/4"	1 13/16"	2 9/16"	1"

412IMD Set. Sockets IMD202 thru IMD562.

412IMDY Set. Sockets IMD202 thru IMD562 on two A267 Socket Rails with clips.

LOCKING RING & PINS

The following are required for tool use.

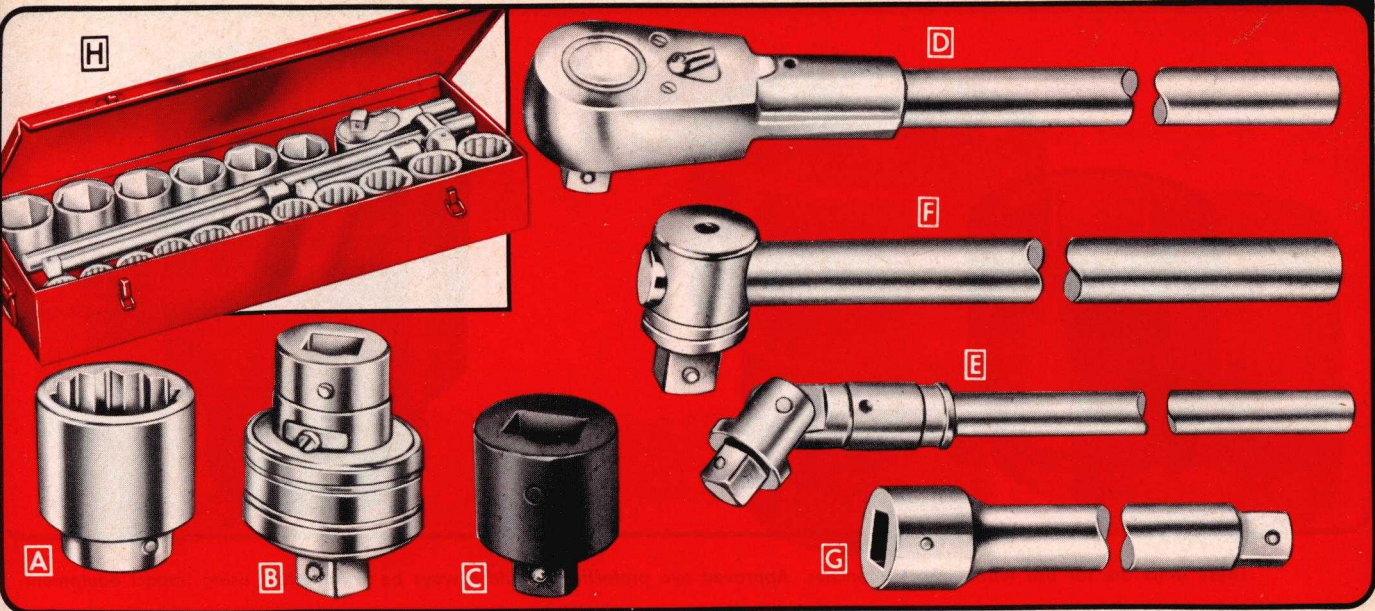
IM182R Rubber Locking Ring. All 3/4" drive units.

IM182P Steel Locking Pin. All 3/4" drive units.

IM182PP Reinforced Plastic Locking Pin. All 3/4" drive units.

CHROME/BLACK "LOXOCKET" UNITS

1"



All 1" drive chrome handles and sockets feature the "LOXOCKET" attaching principle. Socket is locked onto handle which has a special locking pin and can only be released by depressing a button on the socket.

CAUTION: The units on this page are for hand use only.

A "LOXOCKETS"

(Fed. Spec. GGG-W-641E apply)

12 POINT

Wrench Size	Stock No.	Outside Diameter		Bolt Clearance	Overall Length	Broach Depth
		Socket End	Drive End			
17/16"	LDH463	23/16"	2"	1 1/2"	25/8"	1"
1 1/2"	LDH483	2 1/4"	2"	1 5/8"	23/4"	1"
1 5/8"	LDH523	2 3/8"	2"	1 3/4"	2 7/8"	1 1/8"
1 11/16"	LDH543	2 1/2"	2"	1 7/8"	3"	1 3/16"
1 3/4"	LDH563	2 9/16"	2"	1 7/8"	3"	1 1/4"
1 13/16"	LDH583	2 5/8"	2 1/8"	2"	3 1/8"	1 1/4"
1 7/8"	LDH603	2 3/4"	2 1/8"	2 1/8"	3 1/4"	1 7/16"
2"	LDH643	2 15/16"	2 1/8"	2 1/4"	3 3/8"	1 1/2"
2 1/8"	*LDH683	3 1/8"	2 1/4"	2 3/8"	3 1/2"	1 7/16"
2 3/16"	*LDH703	3 1/8"	2 1/4"	2 1/2"	3 5/8"	1 9/16"
2 1/4"	*LDH723	3 1/4"	2 1/4"	2 5/8"	3 3/4"	1 5/8"

6 POINT

2 3/8"	*L763	3 3/8"	2 1/4"	2 3/4"	3 7/8"	1 5/8"
2 1/2"	*L803	3 1/2"	2 1/4"	3"	4 1/8"	1 3/4"
2 5/8"	*L843	3 21/32"	2 1/4"	3 1/8"	4 1/4"	1 7/8"
2 3/4"	*L883	3 13/16"	2 1/4"	3 3/8"	4 1/2"	2"
2 15/16"	*L943	4 1/16"	2 3/8"	3 3/4"	4 7/8"	2 1/8"
3 1/8"	*L1003	4 9/32"	2 3/8"	3 7/8"	5"	2 1/8"

*Standard broach.
Larger sizes available on special order.

B RATCHET ADAPTOR

Converts any combination of 1" drive handle or "TORQOMETER" extension and socket into reverse ratcheting tool.

Stock No.	Gear Action	Head Depth	Head Width	Overall Length
L673A	44 Tooth	2 3/32"	3 1/4"	5"

C ADAPTORS

Interchange 1" and 3/4" drive units.

Stock No.	Square Drive		Overall Length
	Female	Male	
GLA72	3/4"	1"	2 9/16"
GLA124	1"	3/4"	2 13/16"

D RATCHET

CAUTION: Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance. Worn parts should be replaced with entire contents of repair kit.

COMPLETE TOOL		HEAD				HANDLE
Stock No.	Overall Length	Stock No.	Gear Action	Head Width	Head Depth	Stock Number
L73CH	35"	L73C	30 Tooth	3 1/8"	17/16"	L53HA (below)

RKR990 Ratchet Repair Kit. For L73C Ratchet.

E BREAKER BAR

COMPLETE TOOL		HEAD			HANDLE
Stock No.	Overall Length	Stock No.	Head Length	Head Width	Stock No.
L113H	32 5/32"	L113	4 29/32"	2 1/8"	L53HA (below)

F SLIDING T-HANDLE

COMPLETE TOOL		SLIDING HEAD		HANDLE
Stock No.	Overall Length	Stock No.	Head Depth	Stock No.
L53	30"	L53A	2"	L53HA (below)

BAR HANDLE

For Ratchet & T-Handle models.

Stock No.	Overall Length	Handle Diameter	For Ratchet Head Connection
L53HA	30"	1 1/8"	"LOXOCKET" button

G EXTENSION BARS

Stock No.	Shank Diameter	Overall Length	Square Drive Connection
L63	1 1/4"	8"	"LOXOCKET" button
L123	1 1/4"	16"	"LOXOCKET" button

"LOXOCKET" SETS

515AEHDB Basic Set. All 12 pt. "LOXOCKETS" at left, plus L73C Ratchet Head, L53 T-Handle, and L63 and L123 Extension Bars in KRA238A Metal Box.

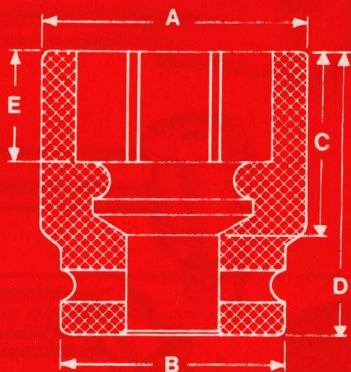
515AEHD Set. Above set without box.

521AEHDB Standard Set. All 6 and 12 point "LOXOCKETS" listed at left, plus L73C Ratchet Head, L53 T-Handle, and L63 and L123 Extension Bars in KRA238A Metal Box.

521AEHD Set. Above set without box.

1"

BLACK IMPACT SOCKETS



CAUTION: These units are for use with impact wrenches. Approved eye protection should always be worn when using impact equipment.

A STANDARD

6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E	Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B						Socket End A	Handle End B			
3/4"	IM243	1 1/2"	2 1/8"	15/16"	2 1/8"	5/8"	2 1/4"	*IM723	3 1/4"	2 3/8"	2 5/16"	3 1/2"	1 3/8"
13/16"	IM263	1 1/2"	2 1/8"	15/16"	2 1/8"	5/8"	2 5/16"	*IM743	3 1/2"	2 3/8"	2 5/16"	3 1/2"	1 1/2"
7/8"	IM283	1 7/32"	2 1/8"	15/16"	2 1/8"	5/8"	2 3/8"	*IM763	3 1/2"	2 3/8"	2 7/16"	3 5/8"	1 1/2"
15/16"	IM303	1 19/32"	2 1/8"	15/16"	2 1/8"	7/8"	2 7/16"	*IM783	3 1/2"	2 3/8"	2 7/16"	3 5/8"	1 1/2"
1"	IM323	1 11/16"	2 1/8"	1 1/16"	2 1/4"	1 1/16"	2 1/2"	*IM803	3 3/4"	2 3/8"	2 7/16"	3 5/8"	1 5/8"
1 1/16"	IM343	1 3/4"	2 1/8"	1 1/16"	2 1/4"	1 1/16"	2 9/16"	*IM823	3 3/4"	2 3/8"	2 9/16"	3 3/4"	1 5/8"
1 1/8"	IM363	1 7/8"	2 1/8"	1 1/16"	2 1/4"	1 1/16"	2 5/8"	*IM843	3 3/4"	2 3/8"	2 9/16"	3 3/4"	1 5/8"
1 3/16"	IM383	1 7/8"	2 1/8"	1 1/16"	2 1/4"	1 1/16"	2 11/16"	*IM863	3 7/8"	2 3/8"	2 11/16"	3 7/8"	1 5/8"
1 1/4"	IM403	2"	2 1/8"	1 3/16"	2 3/8"	3/4"	2 3/4"	*IM883	3 7/8"	2 3/8"	2 11/16"	3 7/8"	1 5/8"
1 5/16"	IM423	2 1/16"	2 1/8"	1 5/16"	2 1/2"	7/8"	2 13/16"	*IM903	4"	2 3/8"	2 13/16"	4"	1 3/4"
1 3/8"	IM443	2 1/8"	2 1/8"	1 5/16"	2 1/2"	7/8"	2 7/8"	*IM923	4"	2 3/8"	2 13/16"	4"	1 3/4"
1 7/16"	IM463	2 1/4"	2 1/4"	1 7/16"	2 1/2"	7/8"	2 9/16"	*IM943	4 1/4"	2 3/8"	2 15/16"	4 1/8"	1 7/8"
1 1/2"	IM483	2 3/8"	2 3/8"	1 9/16"	2 3/4"	1"	3"	*IM963	4 1/4"	2 3/8"	2 15/16"	4 1/8"	1 7/8"
1 9/16"	IM503	2 3/8"	2 3/8"	1 9/16"	2 3/4"	7/8"	3 1/8"	*IM1003	4 3/8"	2 3/8"	3 3/16"	4 3/8"	2"
1 5/8"	IM523	2 3/8"	2 3/8"	1 9/16"	2 3/4"	1"	3 1/4"	*IM1043	4 3/8"	2 3/8"	3 3/16"	4 3/8"	2"
1 11/16"	IM543	2 5/8"	2 3/8"	1 11/16"	2 7/8"	1"	3 3/8"	*IM1083	4 3/4"	2 3/8"	3 3/16"	4 3/8"	2 1/8"
1 3/4"	IM563	2 5/8"	2 3/8"	1 11/16"	2 7/8"	1"	3 1/2"	*IM1123	4 3/4"	2 3/8"	3 3/16"	4 3/8"	2 1/8"
1 13/16"	IM583	2 3/4"	2 3/8"	1 13/16"	3"	1 1/8"	3 5/8"	*IM1163	5"	2 3/8"	3 9/16"	4 3/4"	2 5/16"
1 7/8"	IM603	2 3/4"	2 3/8"	1 13/16"	3"	1 1/8"	3 7/8"	*IM1243	5 3/8"	2 3/8"	3 1/2"	5 1/2"	2 7/16"
1 15/16"	IM623	2 3/4"	2 3/8"	1 13/16"	3"	1 1/8"	4"	*IM1283	5 1/2"	2 3/8"	3 1/2"	5 3/16"	2 1/8"
2"	IM643	3"	2 3/8"	2 1/16"	3 1/4"	1 1/8"	4 1/8"	*IM1323	5 3/4"	2 3/8"	3 1/2"	5 1/4"	2 9/16"
2 1/16"	*IM663	3"	2 3/8"	2 1/16"	3 1/4"	1 1/4"	4 1/4"	*IM1363	5 7/8"	2 3/8"	3 9/16"	5 3/8"	2 5/8"
2 1/8"	*IM683	3 1/4"	2 3/8"	2 1/16"	3 1/4"	1 1/4"	4 1/2"	*IM1443	6 1/4"	2 3/8"	3 13/16"	5 5/8"	2 3/4"
2 3/16"	*IM703	3 1/4"	2 3/8"	2 5/16"	3 1/4"	1 3/8"							

547IM Set. Sockets IM243 thru IM1443.

537IM Set. Sockets IM243 thru IM963.

521IM Set. Sockets IM243 thru IM643.

*Standard broach.

B BOLT CLEARANCE

6 POINT...FLANK DRIVE

7/8"	SIM283	1 19/32"	2 1/8"	1 13/16"	3"	5/8"	2"	SIM643	3"	2 3/8"	2 15/16"	4 1/8"	1 5/16"
1"	SIM323	1 19/32"	2 1/8"	1 13/16"	3"	3/4"	2 1/16"	*SIM663	3"	2 1/4"	2 11/16"	3 7/8"	1 9/16"
1 1/16"	SIM343	1 13/16"	2 1/8"	1 13/16"	3"	3/4"	2 1/8"	*SIM683	3 1/4"	2 3/8"	3 3/16"	4 3/8"	1 5/16"
1 1/8"	SIM363	1 13/16"	2 1/8"	1 13/16"	3"	3/4"	2 3/16"	*SIM703	3 1/4"	2 3/8"	3 3/16"	4 3/8"	1 1/2"
1 3/16"	SIM383	1 13/16"	2 1/8"	1 13/16"	3"	3/4"	2 1/4"	*SIM723	3 1/4"	2 3/8"	3 3/16"	4 3/8"	1 1/2"
1 1/4"	SIM403	2 1/16"	2 1/8"	2 1/16"	3 1/4"	7/8"	2 5/16"	*SIM743	3 1/2"	2 3/8"	3 5/16"	4 1/2"	1 1/2"
1 5/16"	SIM423	2 1/16"	2 1/8"	2 1/16"	3 1/4"	7/8"	2 3/8"	*SIM763	3 1/2"	2 3/8"	3 5/16"	4 1/2"	1 1/2"
1 3/8"	SIM443	2 1/16"	2 1/8"	2 1/16"	3 1/4"	7/8"	2 9/16"	*SIM823	3 3/4"	2 3/8"	3 1/2"	4 7/8"	1 5/8"
1 7/16"	SIM463	2 1/4"	2 1/4"	2 1/16"	3 1/4"	7/8"	2 3/4"	*SIM883	3 7/8"	2 3/8"	3 5/8"	5 1/8"	1 3/4"
1 1/2"	SIM483	2 3/8"	2 3/8"	2 5/16"	3 1/2"	1"							
1 9/16"	SIM503	2 3/8"	2 3/8"	2 9/16"	3 1/2"	1"							
1 5/8"	SIM523	2 1/2"	2 3/8"	2 7/16"	3 5/8"	1"							
1 11/16"	SIM543	2 1/2"	2 3/8"	2 7/16"	3 5/8"	1 1/8"							
1 3/4"	SIM563	2 3/4"	2 3/8"	2 11/16"	3 7/8"	1 1/8"							
1 13/16"	SIM583	2 3/4"	2 3/8"	2 11/16"	3 7/8"	1 3/16"							
1 7/8"	SIM603	2 3/4"	2 3/8"	2 11/16"	3 7/8"	1 3/16"							
1 15/16"	SIM623	3"	2 3/8"	2 15/16"	4 1/8"	1 1/4"							

*Standard broach.

LOCKING RINGS AND PINS

The following are required for tool use.

IM243R Locking Ring. Synthetic rubber. Fits IM243 to IM463 and SIM283 to SIM463.

IM483R Locking Ring. Synthetic rubber. Fits IM483 to IM1443 and SIM483 to SIM883.

IM243P Steel Pin. Fits same units as IM243R Locking Ring.

IM243PP Reinforced Plastic Pin. Fits same units as IM243R Locking Ring.

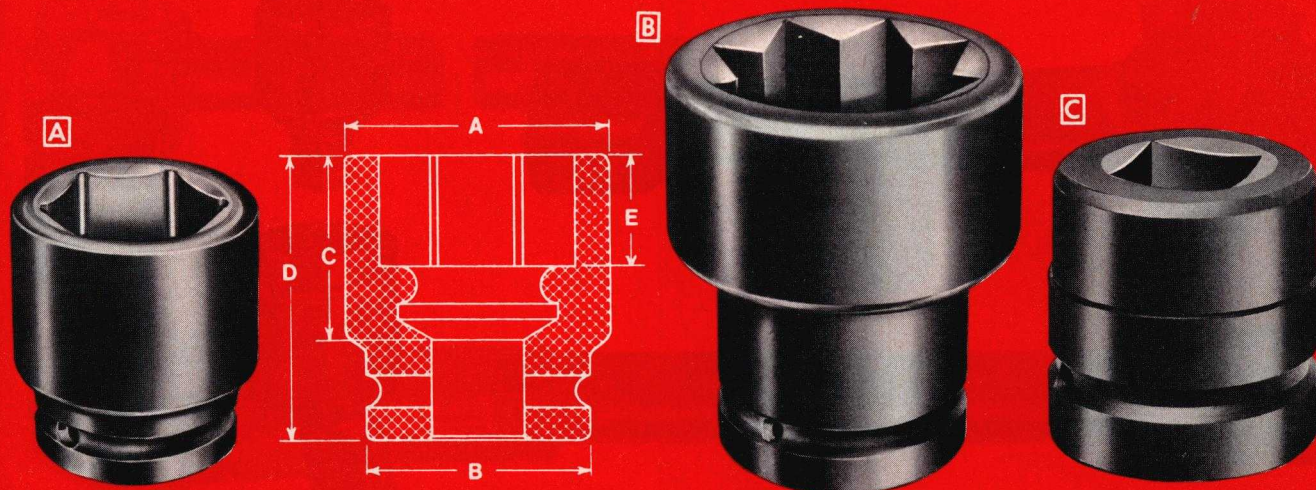
IM483P Steel Pin. Fits same units as IM483R Locking Ring.

526SIM Set. Sockets SIM283 thru SIM883.

518SIM Set. Sockets SIM283 thru SIM643.

BLACK IMPACT SOCKETS

1"



CAUTION: These units are for use with impact wrenches. Approved eye protection should always be worn when using impact equipment.

A HEAVY DUTY

These units have extra heavy walls to withstand impact use on track bolts and other heavy equipment. See page 80 for 3/4" square drive units.

6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
3/4"	IMT243	17/16"	2 1/8"	15/16"	2 1/8"	1 1/16"
13/16"	IMT263	17/16"	2 1/8"	15/16"	2 1/8"	1 1/16"
15/16"	IMT303	1 19/32"	2 1/8"	15/16"	2 1/8"	1 1/16"
1"	IMT323	1 11/16"	2 1/8"	1 1/16"	2 1/4"	1 1/16"
1 1/8"	IMT363	1 7/8"	2 1/8"	1 1/16"	2 1/4"	1 1/16"
1 5/16"	IMT423	2 1/16"	2 1/8"	15/16"	2 1/2"	7/8"

506IMT Set. Sockets IMT243 thru IMT423.

B & C

SOCKETS FOR SQUARE FASTENERS

B BOLT CLEARANCE

SINGLE SQUARE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
1"	SIM732	2 1/8"	2 1/8"	1 13/16"	3"	3/4"
1 1/8"	SIM736	2 3/8"	2 3/8"	1 15/16"	3 1/8"	3/4"

DOUBLE SQUARE

17/16"	SIM746	2 5/8"	2 3/8"	2 1/16"	3 1/4"	7/8"
1 1/2"	SIM748	2 7/8"	2 3/8"	2 5/16"	3 1/2"	7/8"
1 5/8"	SIM752	2 7/8"	2 3/8"	2 5/16"	3 1/2"	7/8"
1 11/16"	SIM754	3 1/8"	2 3/8"	2 7/16"	3 5/8"	1"
1 3/4"	SIM756	3 1/8"	2 3/8"	2 7/16"	3 5/8"	1"
1 13/16"	SIM758	3 3/8"	2 3/8"	2 9/16"	3 7/8"	1 1/16"
2"	SIM764	3 5/8"	2 3/8"	2 13/16"	4 1/8"	1 3/16"

507SIM Set. Double square sockets SIM746 thru SIM764.

C STANDARD

SINGLE SQUARE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
3/4"	IM724	1 15/16"	2 1/8"	15/16"	2 1/8"	5/8"
13/16"	IM726	1 15/16"	2 1/8"	15/16"	2 1/8"	5/8"
7/8"	IM728	2 1/16"	2 1/8"	15/16"	2 1/8"	5/8"
15/16"	IM730	2 1/16"	2 1/8"	15/16"	2 1/8"	5/8"
1"	IM732	2 1/8"	2 1/8"	1 1/16"	2 1/4"	3/4"
1 1/16"	IM734	2 1/8"	2 1/8"	1 1/16"	2 1/4"	3/4"
1 1/8"	IM736	2 1/4"	2 1/4"	1 1/16"	2 1/4"	3/4"
1 3/16"	IM738	2 3/4"	2 3/8"	1 1/8"	2 3/8"	13/16"

508IM Set. Single square sockets IM724 thru IM738.

•Has Budd wheel applications.

DOUBLE SQUARE

1 1/4"	IM740	2 3/8"	2 3/8"	1 1/8"	2 3/8"	13/16"
1 5/16"	IM742	2 5/8"	2 3/8"	1 1/4"	2 1/2"	7/8"
1 3/8"	IM744	2 5/8"	2 3/8"	1 1/4"	2 1/2"	7/8"
1 7/16"	IM746	2 3/4"	2 3/8"	1 1/4"	2 9/16"	7/8"
1 1/2"	IM748	2 7/8"	2 3/8"	1 5/16"	2 5/8"	15/16"
1 5/8"	IM752	3 1/8"	2 3/8"	1 13/32"	2 3/4"	1 1/16"
1 7/8"	IM760	3 3/8"	2 3/8"	1 1/2"	2 7/8"	1 1/16"
2"	IM764	3 5/8"	2 3/8"	1 23/32"	3 1/8"	1 3/16"

608IM Set. Double square sockets IM740 thru IM764.

LOCKING RINGS AND PINS

The following are required for tool use:

IM243R Locking Ring. Synthetic rubber. Fits sockets IMT243 to IMT423, SIM732 to SIM764 and IM724 to IM736.

IM483R Locking Ring. Synthetic rubber. Fits IM738 to IM764.

IM243PP Steel Pin. Fits same units as IM243R Lock Ring.

IM243PP Reinforced Plastic Locking Pin. Fits same units as IM243R Lock Ring.

IM483P Steel Pin. Fits same units as IM483R Lock Ring.



CAUTION: Units B thru E are to be used with impact wrenches. Approved eye protection should always be worn when using impact or striking tools.

A SLUGGING WRENCH

For pipe and boiler maintenance, servicing mill motor nuts, tearing down compressors, turbines, generators, and other nut turning operations where handle offset and sledge hammer tightening is needed.

Flat handle design resists springing. Square hole in top of wrench permits use of a 1" drive extension bar to steady the wrench.

Stock Number	Square Drive	Head Depth	Head Width	Overall Length
IMDX33	1" with pin hole	1 1/2"	3"	11 1/2"

C UNIVERSAL JOINT

Stock Number	Square Drive	Outside Diameter	Overall Length
IP83	1" with pin hole	2 1/2"	4 3/16"

Use with **IM243R** Synthetic Rubber Locking Ring and **IM243P** Steel Locking Pin or **IM243PP** Reinforced Plastic Locking Pin.

D HEX HEAD DRIVERS

COMPLETE TOOL			REPLACEMENT PARTS	
Stock Number	Wrench Size	Overall Length	Bit Only	Roll Pin Only
IMA283	7/8"	5 3/8"	IMA283-2	ME2C18
IMA323	1"	5 3/8"	IMA323-2	ME2C1
IMA363	1 1/8"	4 1/4"	IMA363-2	ME2C18
IMA403	1 1/4"	4 3/8"	IMA403-2	ME2C1
IMA443	1 3/8"	4 1/2"	IMA443-2	ME2C1

505IMA Set. Includes IMA283 thru IMA443.

Use with **IM243R** Synthetic Rubber Locking Ring and **IM243P** Steel Locking Pin or **IM243PP** Reinforced Plastic Locking Pin.

B ADAPTORS

Stock Number	Square Drive		Outside Diameter	Overall Length
	Female End	Male End		
IM72	3/4"	1" with pin hole	1 5/8"	2 9/16"
IM124A	1"	3/4" with pin hole	2 1/8"	2 13/16"
IM35	1"	1 1/2" with pin hole	2 1/4"	3 1/2"
IM53	1 1/2"	1" with pin hole	3 1/4"	4 1/4"

IM72—Use **IM182R** Rubber Locking Ring and **IM182P** Steel Locking Pin or **IM182PP** Reinforced Plastic Locking Pin.

IM124A and **IM35**—Use **IM243R** Synthetic Rubber Locking Ring and **IM243P** Steel Locking Pin or **IM243PP** Reinforced Plastic Locking Pin.

IM53—Use **IM445R** Rubber Locking Ring and **IM445P** Steel Locking Pin.

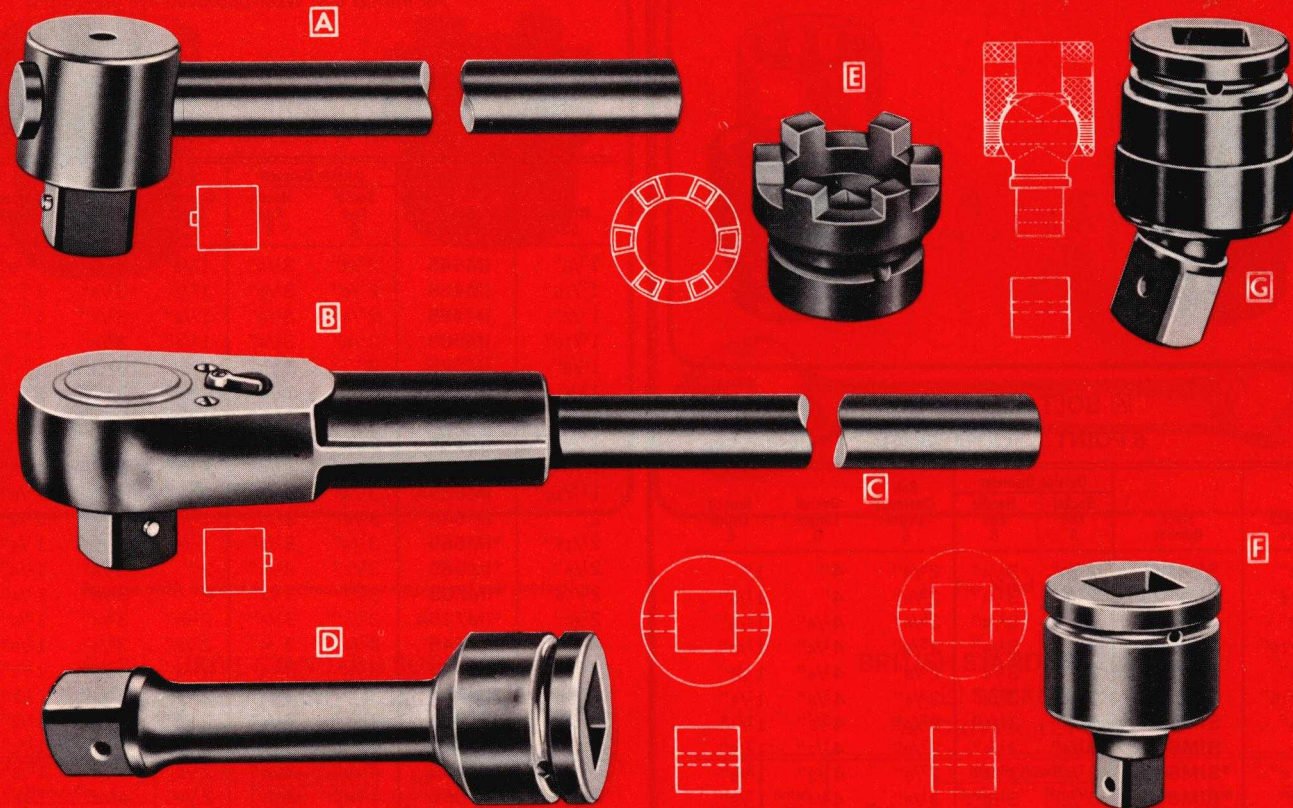
E EXTENSION BARS

Stock Number	Square Drive	Shank Diameter	Overall Length
IM63	1" with pin hole	1 1/8"	7 1/8"
IM123	1" with pin hole	1 3/8"	13 1/8"

Use with **IM243B** Synthetic Rubber Locking Ring and **IM243P** Steel Locking Pin or **IM243PP** Reinforced Plastic Locking Pin.

BLACK IMPACT ACCESSORIES

1-1/2"



CAUTION: Units D thru G are for use with impact wrenches. Approved eye protection should always be worn when using impact equipment.

A SLIDING T-HANDLE

Includes **L55-1** Handle listed below.

COMPLETE TOOL		HEAD ONLY		
Stock Number	Overall Length	Stock Number	Square Drive	Head Depth
L55	36"	L55-2	1 1/2" with lock button	2 1/2"

B RATCHET

CAUTION: Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance. Replace worn parts with entire contents of repair kit.

Includes **L55-1** Handle listed below.

Gear Action — 16 Tooth.

Square drive has a locking button.

COMPLETE TOOL		HEAD ONLY				
Stock Number	Overall Length	Stock Number	Square Drive	Head Length	Head Depth	Head Width
L78	42"	L78Y	1 1/2"	9 29/32"	1 3/4"	4 1/16"

C BAR HANDLE FOR RATCHET OR SLIDING TEE

Stock Number	Overall Length	Bar Diameter	For Ratchet Head Connection
L55-1	36"	1 3/8"	Bar has lock button

D EXTENSION BARS

Stock Number	Square Drive	Shank Diameter	Overall Length
IM105	1 1/2" with pin hole	1 1/2"	10"
IM205	1 1/2" with pin hole	1 1/2"	20"

Use IM445R Lock Ring and IM445P Lock Pin.

E SPANNER SOCKETS

Wrench Size	Stock Number	Outside Diameter		Overall Length
		Spanner End	Drive End	
2 1/4"	IGE725	3 1/2"	3 1/4"	3 1/4"
2 1/2"	IGE805	3 7/8"	3 1/4"	3 5/16"
2 3/4"	IGE885	4 1/4"	3 1/4"	3 3/8"
3"	IGE965	4 3/4"	3 1/4"	3 7/16"

Use IM445R Lock Ring and IM445P Lock Pin.

F IMPACT SOCKET/HANDLE ADAPTORS

Stock Number	Square Drive		Outside Diameter	Overall Length
	Female End	Male End		
IM35	1"	1 1/2" with pin hole	2 1/4"	3 1/2"
IM53	1 1/2"	1" with pin hole	3 1/4"	4 1/4"
IM95	2 1/2"	1 1/2" with pin hole	5"	6 3/8"

IM35 — Use IM243R Lock Ring and IM243P or IM243PP Lock Pin.

IM53 — Use IM445R Lock Ring and IM445P Lock Pin.

IM95 — Use IM729R Lock Ring and IM729P Lock Pin.

G UNIVERSAL JOINT

Stock Number	Square Drive	Outside Diameter	Overall Length
IP85	1 1/2" with pin hole	3 5/8"	6 1/16"

Use IM445R Lock Ring and IM445P Lock Pin.

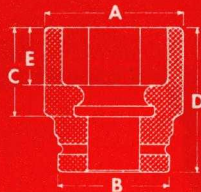
1-1/2"

BLACK IMPACT SOCKETS

A



B



A BOLT CLEARANCE
6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
1 1/2"	SIM485	27/8"	3 1/4"	23/8"	4"	1"
1 9/16"	SIM505	27/8"	3 1/4"	23/8"	4"	1 1/8"
1 5/8"	SIM525	3"	3 1/4"	25/8"	4 1/4"	1 1/8"
1 11/16"	SIM545	3"	3 1/4"	25/8"	4 1/4"	1 1/8"
1 3/4"	SIM565	3"	3 1/4"	25/8"	4 1/4"	1 1/8"
1 13/16"	SIM585	3 1/8"	3 1/4"	23/4"	4 3/8"	1 1/4"
1 7/8"	SIM605	3 1/8"	3 1/4"	23/4"	4 3/8"	1 1/4"
2"	SIM645	3 1/4"	3 1/4"	27/8"	4 1/2"	1 3/8"
2 1/16"	*SIM665	3 1/4"	3 1/4"	27/8"	4 1/2"	1 3/8"
2 1/8"	*SIM685	3 1/2"	3 1/4"	3 1/8"	4 3/4"	1 1/2"
2 3/16"	*SIM705	3 1/2"	3 1/4"	3 1/8"	4 3/4"	1 1/2"
2 1/4"	*SIM725	3 3/4"	3 1/4"	3 3/8"	5"	1 9/16"
2 5/16"	*SIM745	3 3/4"	3 1/4"	3 3/8"	5"	1 9/16"
2 3/8"	*SIM765	3 3/4"	3 1/4"	3 3/8"	5"	1 9/16"
2 7/16"	*SIM785	3 3/4"	3 1/4"	3 5/16"	5"	1 9/16"
2 1/2"	*SIM805	4"	3 1/4"	3 1/2"	5 1/4"	1 9/16"
2 9/16"	*SIM825	4"	3 1/4"	3 1/2"	5 1/4"	1 9/16"
2 5/8"	*SIM845	4 1/4"	3 1/4"	3 3/4"	5 1/2"	1 5/8"
2 11/16"	*SIM865	4 1/4"	3 1/4"	3 3/4"	5 1/2"	1 3/4"
2 3/4"	*SIM885	4 1/2"	3 1/4"	3 7/8"	5 5/8"	1 3/4"
2 13/16"	*SIM905	4 1/2"	3 1/4"	3 7/8"	5 5/8"	1 3/4"
2 7/8"	*SIM925	4 1/2"	3 1/4"	4 1/16"	5 3/4"	1 7/8"
2 15/16"	*SIM945	4 1/2"	3 1/4"	4 1/16"	5 3/4"	1 7/8"
3"	*SIM965	4 3/4"	3 1/4"	3 15/16"	5 7/8"	1 13/16"
3 1/16"	*SIM985	4 3/4"	3 1/4"	3 15/16"	5 7/8"	1 13/16"
3 1/8"	*SIM1005	4 3/4"	3 1/4"	4 3/16"	6"	1 7/8"
3 3/16"	*SIM1025	4 3/4"	3 1/4"	4 3/16"	6"	2"
3 1/4"	*SIM1045	5"	3 1/4"	4 3/8"	6 1/4"	2"
3 5/16"	*SIM1065	5"	3 1/4"	4 3/8"	6 1/4"	2"
3 3/8"	*SIM1085	5"	3 1/4"	4 3/8"	6 1/4"	2"
3 7/16"	*SIM1105	5"	3 1/4"	4 3/8"	6 1/4"	2"
3 1/2"	*SIM1125	5 1/8"	3 1/4"	4 3/8"	6 3/8"	2"
3 9/16"	*SIM1145	5 1/8"	3 1/4"	4 3/8"	6 3/8"	2"
3 5/8"	*SIM1165	5 1/2"	3 1/4"	4 7/8"	6 3/4"	2 1/16"
3 11/16"	*SIM1185	5 1/2"	3 1/4"	4 7/8"	6 3/4"	2 1/16"
3 3/4"	*SIM1205	5 1/2"	3 1/4"	4 13/16"	6 3/4"	2 1/16"
3 13/16"	*SIM1225	5 1/2"	3 1/4"	4 13/16"	6 3/4"	2 1/16"
3 7/8"	*SIM1245	5 1/2"	3 1/4"	4 13/16"	6 3/4"	2 1/16"
3 15/16"	*SIM1265	5 3/4"	3 1/4"	5 5/16"	7 1/4"	2 3/16"
4"	*SIM1285	5 3/4"	3 1/4"	5 5/16"	7 1/4"	2 3/16"
4 1/16"	*SIM1305	5 3/4"	3 1/4"	5 5/16"	7 1/4"	2 3/16"
4 1/8"	*SIM1325	6"	3 1/4"	5 1/2"	7 1/2"	2 3/16"
4 3/16"	*SIM1345	6"	3 1/4"	5 1/2"	7 1/2"	2 3/16"
4 1/4"	*SIM1365	6"	3 1/4"	5 3/4"	7 3/4"	2 5/16"
4 1/2"	*SIM1445	6 1/4"	3 1/4"	5 3/4"	7 3/4"	2 5/16"
4 5/8"	*SIM1485	6 1/2"	3 1/4"	5 7/8"	8"	2 7/16"
4 3/4"	*SIM1525	6 1/2"	3 1/4"	5 13/16"	8"	2 7/16"

547SIM Set. Sockets SIM485 through SIM1525.

532SIM Set. Sockets SIM485 through SIM1125.

517SIM Set. Sockets SIM485 through SIM825.

*Standard broach.

CAUTION: For impact use. Wear approved eye protection.

B STANDARD

6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
		Socket End A	Handle End B			
1 3/8"	IM445	27/8"	3 1/4"	1 1/2"	3 1/8"	7/8"
1 7/16"	IM465	27/8"	3 1/4"	1 1/2"	3 1/8"	1"
1 1/2"	IM485	27/8"	3 1/4"	1 1/2"	3 1/8"	1"
1 9/16"	IM505	27/8"	3 1/4"	1 1/2"	3 1/8"	1"
1 5/8"	IM525	3"	3 1/4"	1 5/8"	3 1/4"	1"
1 11/16"	IM545	3"	3 1/4"	1 5/8"	3 1/4"	1"
1 3/4"	IM565	3 1/8"	3 1/4"	1 5/8"	3 1/4"	1"
1 13/16"	IM585	3 1/8"	3 1/4"	1 5/8"	3 1/4"	1"
1 7/8"	IM605	3 1/8"	3 1/4"	1 3/4"	3 3/8"	1 1/8"
1 15/16"	IM625A	3 1/8"	3 1/4"	1 3/4"	3 3/8"	1 1/8"
2"	IM645	3 1/4"	3 1/4"	1 7/8"	3 1/2"	1 1/4"
2 1/16"	*IM665	3 1/4"	3 1/4"	1 7/8"	3 1/2"	1 1/4"
2 1/8"	*IM685	3 1/2"	3 1/4"	2"	3 5/8"	1 1/4"
2 3/16"	*IM705	3 1/2"	3 1/4"	2"	3 5/8"	1 1/4"
2 1/4"	*IM725A	3 3/4"	3 1/4"	2 1/8"	3 3/4"	1 3/8"
2 5/16"	*IM745	3 3/4"	3 1/4"	2 1/8"	3 3/4"	1 3/8"
2 3/8"	*IM765	3 7/8"	3 1/4"	2 1/4"	3 7/8"	1 1/2"
2 7/16"	*IM785	3 7/8"	3 1/4"	2 1/4"	3 7/8"	1 1/2"
2 1/2"	*IM805	4"	3 1/4"	2 3/8"	4"	1 1/2"
2 9/16"	*IM825	4"	3 1/4"	2 3/8"	4"	1 1/2"
2 5/8"	*IM845	4 1/8"	3 1/4"	2 1/2"	4 1/8"	1 5/8"
2 11/16"	*IM865	4 1/8"	3 1/4"	2 1/2"	4 1/8"	1 5/8"
2 3/4"	*IM885	4 1/4"	3 1/4"	2 5/8"	4 1/4"	1 11/16"
2 13/16"	*IM905	4 1/2"	3 1/4"	2 5/8"	4 1/4"	1 11/16"
2 7/8"	*IM925	4 1/2"	3 1/4"	2 5/8"	4 1/4"	1 11/16"
2 15/16"	*IM945	4 1/2"	3 1/4"	2 3/4"	4 3/8"	1 3/4"
3"	*IM965	4 3/4"	3 1/4"	2 7/8"	4 1/2"	1 7/8"
3 1/16"	*IM985	4 3/4"	3 1/4"	2 7/8"	4 1/2"	1 7/8"
3 1/8"	*IM1005	4 3/4"	3 1/4"	3"	4 5/8"	2"
3 3/16"	*IM1025	4 3/4"	3 1/4"	3"	4 5/8"	2 1/8"
3 1/4"	*IM1045	5"	3 1/4"	3 1/8"	4 3/4"	1 7/8"
3 5/16"	*IM1065	5"	3 1/4"	3 1/8"	4 3/4"	1 7/8"
3 3/8"	*IM1085	5"	3 1/4"	3 1/8"	4 3/4"	1 7/8"
3 7/16"	*IM1105	5"	3 1/4"	3 1/8"	4 3/4"	1 7/8"
3 1/2"	*IM1125	5 1/8"	3 1/4"	3 3/8"	5"	1 7/8"
3 9/16"	*IM1145	5 1/8"	3 1/4"	3 3/8"	5"	1 7/8"
3 5/8"	*IM1165	5 1/8"	3 1/4"	3 3/8"	5"	1 7/8"
3 3/4"	*IM1205	5 1/2"	3 1/4"	3 5/8"	5 1/4"	2 1/16"
3 13/16"	*IM1225	5 1/2"	3 1/4"	3 5/8"	5 1/4"	2 1/16"
3 7/8"	*IM1245	5 1/2"	3 1/4"	3 5/8"	5 1/4"	2 1/16"
3 15/16"	*IM1265	5 3/4"	3 1/4"	3 7/8"	5 1/2"	2 1/16"
4"	*IM1285	5 3/4"	3 1/4"	3 7/8"	5 1/2"	2 3/16"
4 1/16"	*IM1305	5 3/4"	3 1/4"	3 7/8"	5 1/2"	2 3/16"
4 1/8"	*IM1325	6"	3 1/4"	4"	5 5/8"	2 3/16"
4 3/16"	*IM1345	6"	3 1/4"	4"	5 5/8"	2 3/16"
4 1/4"	*IM1365	6"	3 1/4"	4"	5 5/8"	2 3/16"
4 5/16"	*IM1385	6 1/4"	3 1/4"	4 1/8"	5 3/4"	2 3/16"
4 3/8"	*IM1405	6 1/4"	3 1/4"	4 1/8"	5 3/4"	2 5/16"
4 7/16"	*IM1425	6 1/4"	3 1/4"	4 1/8"	5 3/4"	2 5/16"
4 1/2"	*IM1445	6 1/4"	3 1/4"	4 1/8"	5 3/4"	2 5/16"
4 5/8"	*IM1485	6 1/2"	3 1/4"	4 3/8"	6"	2 1/2"
4 3/4"	*IM1525	6 1/2"	3 1/4"	4 3/8"	6"	2 1/2"

552IM Set. Sockets IM445 through IM1525.

535IM Set. Sockets IM445 through IM1125.

520IM Set. Sockets IM445 through IM825.

*Standard broach.

LOCKING RING AND PINS

The following are required for tool use.

IM445R Rubber Locking Ring. For all 1 1/2" drive sockets.

IM445P Steel Locking Pin. For all 1 1/2" drive sockets.

IM445PP Reinforced Plastic Locking Pin. For all 1 1/2" drive sockets.

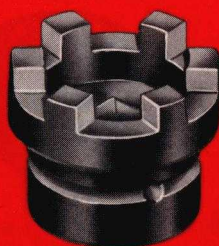
2-1/2"

BLACK IMPACT/CHROME BRITISH STD.

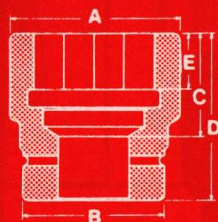
British



A



B



CAUTION: For use with impact wrenches. Wear approved eye protection.

A 2 1/2" DRIVE STANDARD SOCKETS

6 POINT... STANDARD BROACHING

Additional sizes available on special order.

Wrench Size		Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Inch Size	Metric		Socket End A	Handle End B			
2 1/4"		IM729	4 3/8"	5"	3"	5 1/2"	1 11/16"
2 3/8"		IM769	4 3/8"	5"	3"	5 1/2"	2"
2 5/8"		IM849	4 3/8"	5"	3"	5 1/2"	1 11/16"
2 3/4"	70 mm	IM889	5"	5"	3 1/8"	5 3/4"	2"
2 15/16"	75 mm	IM949	5"	5"	3 1/8"	5 3/4"	2"
3"		IM969	5"	5"	3 1/8"	5 3/4"	2"
3 1/8"		IM1009	5"	5"	3 1/8"	5 3/4"	2"
3 1/4"		IM1049	5 1/2"	5"	3 3/8"	5 3/4"	2"
3 3/8"		IM1089	5 1/2"	5"	3 3/8"	5 3/4"	2 3/8"
3 1/2"		IM1129	5 1/2"	5"	3 3/8"	5 3/4"	2 3/8"
3 5/8"		IM1169	5 1/2"	5"	3 3/8"	5 3/4"	2 3/8"
3 3/4"	95 mm	IM1209	6 1/4"	5"	3 13/16"	6 1/4"	2 1/8"
3 7/8"		IM1249	6 1/4"	5"	3 13/16"	6 1/4"	2 1/8"
4"		IM1289	6 1/4"	5"	3 13/16"	6 1/4"	2 1/8"
4 1/8"	105 mm	IM1329	6 1/4"	5"	3 13/16"	6 1/4"	2 1/8"
4 1/4"		IM1369	7"	5"	4 1/4"	6 3/4"	2 1/8"
4 3/8"		IM1409	7"	5"	4 1/4"	6 3/4"	2 1/8"
4 5/8"		IM1489	7"	5"	4 1/4"	6 3/4"	2 1/8"
4 7/8"		IM1569	7 1/2"	5"	5"	7 1/2"	2 3/8"
5"		IM1609	7 1/2"	5"	5"	7 1/2"	2 3/8"
5 1/4"		IM1689	7 1/2"	5"	5"	7 1/2"	2 3/8"
5 3/8"		IM1729	7 3/4"	6"	4 3/4"	7 5/8"	2 5/8"
5 7/16"		IM1749	7 3/4"	6"	5 1/4"	7 5/8"	2 5/8"
5 1/2"		IM1769	7 3/4"	6"	5 1/4"	7 5/8"	2 5/8"
5 5/8"		IM1809	7 3/4"	6"	5 1/4"	7 5/8"	2 5/8"

B SPANNER SOCKETS

Wrench Size	Stock Number	Outside Diameter		Overall Length
		Spanner End	Drive End	
2 3/4"	IGE889	4 1/4"	5"	3 13/16"
3"	IGE969	4 5/8"	5"	3 13/16"
3 1/2"	IGE1129	5 1/2"	5"	4 1/4"
4"	IGE1289	6 1/4"	5"	4 1/4"
4 1/2"	IGE1449	7"	5"	4 13/16"

LOCKING RINGS AND PIN

The following are required for tool use.

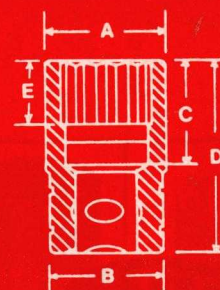
IM729R Locking Ring. Synthetic rubber, fits sockets IM729 thru IM1689 and all IGE sockets.

IM1729RA Locking Ring. Synthetic rubber, fits sockets IM1729 thru IM1809.

IM729P Locking Pin. Steel, fits all 2 1/2" square drive sockets.



C



D

CAUTION: For hand operation only.

BRITISH STANDARD UNITS

C SOCKETS

3/8" DRIVE... 12 POINT

Hex Size	British Bolt Size	Stock No.	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
			Socket End A	Handle End B			
.250"	4BA	†WF94	25/64"	21/32"	7/16"	29/32"	9/32"
.280"	3BA	†WF95	25/64"	21/32"	7/16"	29/32"	9/32"
.324"	2BA	WF96	29/64"	11/16"	7/16"	29/32"	9/32"
.338"	3/16"	WF96A	35/64"	11/16"	7/16"	29/32"	9/32"
.365"	1BA	WF97	35/64"	11/16"	7/16"	29/32"	9/32"
.413"	0BA	WF98	39/64"	11/16"	7/16"	29/32"	9/32"
.448"	1/4"	WF99	5/8"	11/16"	7/16"	29/32"	9/32"
.525"	5/16"	WF100	3/4"	11/16"	1/2"	15/16"	11/32"
.600"	3/8"	WF101	13/16"	3/4"	9/16"	1"	3/8"
.710"	7/16"	WF102	31/32"	29/32"	5/8"	1 1/16"	13/32"
.820"	1/2"	WF103	1 1/8"	1 1/32"	1 1/16"	1 5/32"	1 5/32"
.920"	9/16"	WF104	1 1/4"	1 3/16"	3/4"	1 1/8"	1 5/32"

†6 Point.

212WF Set. Sockets WF94 thru WF104.

212WFI Set. Sockets WF94 thru WF104 on A269 Socket Rail with clips.

212WFT Set. Sockets WF94 thru WF104 in KTA232B Metal Tray (p. 21).

1/2" DRIVE... 12 POINT

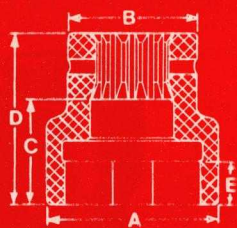
1.010"	5/8"	WSW105	1 11/32"	1 9/32"	7/8"	1 1/2"	5/8"
1.100"	1 1/16"	WSW106	1 1/2"	1 7/16"	1 1/8"	1 3/4"	3/4"
1.200"	3/4" & 13/16"	WSW107	1 5/8"	1 9/16"	1 1/8"	1 3/4"	3/4"
1.300"	7/8"	WSW108	1 3/4"	1 11/16"	1 1/4"	1 7/8"	1 1/16"

D SHORT HANDLE COMBINATION WRENCHES

British Bolt Size	Stock Number	Head Diameters		Head Depths		Overall Length
		Box End	Open End	Box End	Open End	
3/16"	WOEX6A	9/16"	25/32"	17/64"	13/64"	5 1/4"
1BA	WOEX70	9/16"	25/32"	17/64"	13/64"	5 1/4"
0BA	WOEX80	41/64"	29/32"	19/64"	15/64"	5 3/8"
1/4"	WOEX90	21/32"	29/32"	19/64"	15/64"	5 3/8"
5/16"	WOEX100	13/16"	1 3/16"	21/64"	17/64"	6"
3/8"	WOEX110	57/64"	1 5/16"	11/32"	9/32"	6 1/4"
7/16"	WOEX120	31/32"	1 7/16"	23/32"	19/64"	6 1/2"

WOEXS707 Set. Wrenches WOEX6A thru WOEX120.

WOEXS707K Set. Wrenches WOEX6A thru WOEX120 in C74D Kit Bag.



A



B



C



D



E

CAUTION: These units are for use with impact wrenches. Approved eye protection should always be worn when using impact equipment.

A SPLINE DRIVE SOCKETS 6 POINT...FLANK DRIVE

Sockets have white dots for counting number of turns.

14 Tooth Spline		Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Wrench Size	Stock Number	Socket End A	Handle End B			
1 1/8"	IMS367	1 13/16"	2 1/4"	1 1/2"	2 3/4"	1 1/16"
1 1/4"	IMS407	2"	2 3/8"	1 11/16"	2 5/16"	3/4"
1 5/16"	IMS427	2 1/16"	2 3/8"	1 11/16"	2 5/16"	13/16"
1 7/16"	IMS467	2 1/4"	2 3/8"	1 11/16"	2 5/16"	7/8"
1 1/2"	IMS487	2 1/4"	2 3/8"	1 3/4"	3"	7/8"
1 5/8"	IMS527	2 7/16"	2 3/8"	1 13/16"	3 1/8"	1"
1 11/16"	IMS547	2 9/16"	2 3/8"	1 13/16"	3 1/8"	1"
1 13/16"	IMS587	2 3/4"	2 3/8"	1 13/16"	3 5/16"	1 1/8"
1 7/8"	IMS607	2 3/4"	2 3/8"	1 7/8"	3 5/16"	1 1/8"
2"	IMS647	3"	2 3/8"	1 11/16"	3 1/2"	1 3/16"
*2 1/8"	IMS687	3 1/8"	2 3/8"	1 29/32"	3 5/8"	1 5/16"
*2 3/16"	IMS707	3 1/4"	2 3/8"	1 7/8"	3 5/8"	1 5/16"
*2 1/4"	IMS727	3 1/4"	2 3/8"	1 7/8"	3 5/8"	1 5/16"
*2 5/16"	IMS747	3 3/8"	2 3/8"	2 1/32"	3 3/4"	1 7/16"
*2 3/8"	IMS767	3 1/2"	2 3/8"	2 1/32"	3 3/4"	1 7/16"
*2 9/16"	IMS827	3 3/4"	2 3/8"	2 1/4"	4"	1 1/2"
*2 3/4"	IMS887	3 7/8"	2 3/8"	2 1/8"	4 1/8"	1 5/8"

517IMS Set. Sockets IMS367 thru IMS887.

*Standard broach.

B SPLINE DRIVE UNIVERSAL JOINT

Stock Number	Male and Female Spline	Outside Diameter	Overall Length
IMS8B	No. 5, 14-Tooth	2 13/16"	7 3/4"

C SPLINE-TO-SQUARE DRIVE ADAPTOR

Stock Number	Male Drive	Female Spline	Outside Diameter	Overall Length
IMS3A	1" Square	No. 5, 14-Tooth	2 1/4"	3 3/8"

D SQUARE-TO-SPLINE DRIVE ADAPTOR

Stock Number	Male Spline	Female Drive	Outside Diameter	Overall Length
IMS30A	No. 5, 14-Tooth	1" Square	2 13/64"	4 1/2"

E SPLINE DRIVE EXTENSION BAR

Stock Number	Male and Female Spline	Shank Diameter	Overall Length
IMSX8A	No. 5, 14-Tooth	1 5/8"	8"

LOCKING RING AND PIN

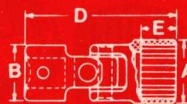
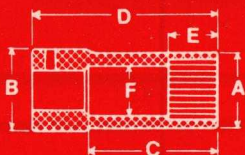
The following are required for tool use:

IM483R Locking Ring. Fits all units on this page.

IM483P Steel Locking Pin. Fits all units on this page.

HIGH PERFORMANCE SOCKETS

1/4" - 3/4"



High Performance sockets are made of high alloy aircraft quality steel and are specially heat treated for greater strength. High Performance sockets can be used on high tensile nuts, bolts and

cap screws often found in the aircraft industry as well as other applications. All the units on this page are 12 pt. and feature Snap-on patented "FLANK DRIVE" broaching.

CAUTION: These units are for hand operation only.

1/4" DRIVE

Fed. Spec. GGG-W-1437 applies to chrome units.

A SOCKETS

Wrench Size	Stock Number Black	Stock Number Chrome	Outside Diameter		Bolt Clear. Depth C	Overall Length D	Broach Depth E	Bolt Clear. Dia. F
			Socket End A	Handle End B				
7/32"	—	TDH7	11/32"	7/16"	27/32"	1 1/4"	3/16"	3/16"
1/4"	TDHB8	TDH8	3/8"	7/16"	25/32"	1 1/4"	7/32"	13/64"
9/32"	—	TDH9	27/64"	27/64"	27/32"	1 1/4"	9/32"	1/4"
5/16"	TDHB10	TDH10	7/16"	7/16"	25/32"	1 1/4"	5/16"	17/64"

104TDH Set. Chrome sockets TDH7 thru TDH10.

B "FLEXOCKETS"

Wrench Size	Stock Number Chrome	Outside Diameter		Overall Length D	Broach Depth E
		Socket End A	Handle End B		
1/4"	TDHU81A	3/8"	1/2"	1 3/16"	7/32"
5/16"	TDHU101A	29/64"	1/2"	1 17/64"	1/4"
3/8"	TDHU121A	17/32"	1/2"	1 21/64"	9/32"

3/8" DRIVE

Fed. Spec. GGG-W-1437, XWS-2149 and GGG-W-641E apply to chrome units only.

C SOCKETS

Wrench Size	Stock Number Black	Stock Number Chrome	Outside Diameter		Bolt Clear. Depth C	Overall Length D	Broach Depth E
			Socket End A	Handle End B			
1/4"	FDHB080	FDH080	25/64"	11/16"	25/32"	1 1/4"	7/32"
5/16"	FDHB100	FDH100	29/64"	11/16"	25/32"	1 1/4"	5/16"
11/32"	—	FDH110	1/2"	11/16"	29/32"	1 3/8"	11/32"
3/8"	FDHB120	FDH120	17/32"	11/16"	1 1/32"	1 1/2"	11/32"
7/16"	FDHB140	FDH140	39/64"	11/16"	1 1/32"	1 1/2"	27/64"
1/2"	FDHB160	FDH160	11/16"	11/16"	1 9/32"	1 3/4"	7/16"

205FDHB Set. Black sockets FDHB080 thru FDHB160.

206FDH Set. Chrome sockets FDH080 thru FDH160.

D "FLEXOCKETS"

Wrench Size	Stock Number Chrome	Outside Diameter		Overall Length D	Broach Depth E
		Socket End A	Handle End B		
7/16"	FDHU14A	5/8"	11/16"	1 55/64"	27/64"
1/2"	FDHU16A	23/32"	11/16"	1 57/64"	7/16"
9/16"	FDHU18A	25/32"	11/16"	1 31/32"	1/2"

1/2" DRIVE

Fed. Spec. GGG-W-1437, XWS-2149 and GGG-W-641E apply to chrome units only.

E SOCKETS

Wrench Size	Stock Number Black	Stock Number Chrome	Outside Diameter		Bolt Clear. Depth C	Overall Length D	Broach Depth E
			Socket End A	Handle End B			
1/2"	SDHB160	SDH160	47/64"	7/8"	1 1/8"	1 3/4"	7/16"
9/16"	SDHB180	SDH180	13/16"	15/16"	1 1/8"	1 3/4"	1/2"
5/8"	SDHB200	SDH200	57/64"	15/16"	1 1/8"	1 3/4"	17/32"
11/16"	SDHB220	SDH220	31/32"	1"	1 1/8"	1 3/4"	19/32"
3/4"	SDHB240	SDH240	1 1/32"	1"	1 1/8"	1 3/4"	5/8"
25/32"	SDHB250	SDH250	1 1/16"	1"	1 1/8"	1 3/4"	5/8"
13/16"	—	SDH260	1 1/8"	1 1/16"	1 1/8"	1 3/4"	11/16"

306SDHB Set. Black sockets SDHB160 thru SDHB250.

306SDHBY Set. Black sockets SDHB160 thru SDHB250 on A265 Socket Rail and clips.

307SDH Set. Chrome sockets SDH160 thru SDH260.

307SDHY Set. Chrome sockets SDH160 thru SDH260 on A265 Socket Rail and clips.

F 3/4" DRIVE-THIN WALL

Wrench Size	Stock Number Black	Outside Diameter		Bolt Clear. Depth C	Overall Length D	Broach Depth E	Bolt Clear. Dia. F
		Socket End A	Handle End B				
3/4"	IMFD242	1 1/8"	1 1/2"	1 3/8"	2 1/8"	5/8"	11/16"
13/16"	IMFD262	1 3/16"	1 1/2"	1 3/8"	2 1/8"	11/16"	23/32"
7/8"	IMFD282	1 5/16"	1 1/2"	1 3/8"	2 1/8"	3/4"	25/32"
15/16"	IMFD302	1 3/8"	1 1/2"	1 1/4"	2 3/16"	13/16"	27/32"
1"	IMFD322	1 7/16"	1 1/2"	1 1/2"	2 1/4"	7/8"	29/32"
1 1/16"	IMFD342	1 9/16"	1 1/2"	1 9/16"	2 5/16"	15/16"	31/32"
1 3/16"	IMFD382	1 11/16"	1 1/2"	1 11/16"	2 7/16"	1"	1 3/32"

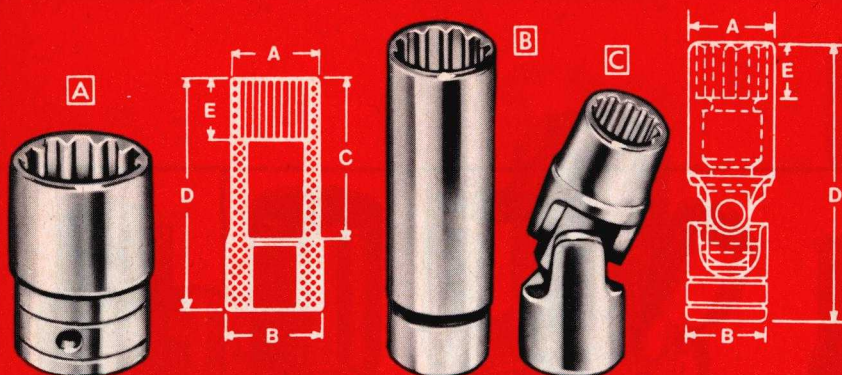
LOCKING RING AND PINS

The following are required for tool use.

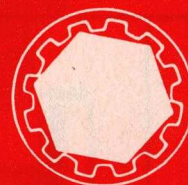
IM182R Rubber Locking Ring. Fits all 3/4" drive units.

IM182P Steel Locking Pin. Fits all 3/4" drive units.

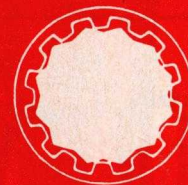
IM182PP Reinforced Plastic Locking Pin. Fits all 3/4" drive units.



Spline sockets service both 6 and 12 pt. fasteners as well as spline.



6 POINT



12 POINT

Snap-on spline sockets turn both single hex and double hex nuts in addition to the spline nuts. The socket opening is accurately broached with specially shaped segments which contact the spline of the nut and contact the single and double hex nuts below their

corners (with flat-to-flat contact) for maximum turning efficiency. They comply with Military Spec. MS-33787. Spline sockets are covered by U.S. Patent Nos. 3,354,757 and 3,675,516 and Canadian Patent No. 826,412.

1/4" DRIVE

CAUTION: For hand operation only.

1/2" DRIVE**A STANDARD**

Wrench Size		Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Spline Size	Hex Size		Socket End A	Handle End B			
# 7	7/32"	TES7	11/32"	27/64"	9/16"	7/8"	13/64"
# 8	1/4"	TES8	3/8"	27/64"	9/16"	7/8"	1/4"
# 9	9/32"	TES9	7/16"	27/64"	9/16"	7/8"	9/32"
#10	5/16"	TES10	15/32"	29/64"	9/16"	7/8"	5/16"
#12	3/8"	TES12	35/64"	35/64"	17/32"	7/8"	11/32"
#14	7/16"	TES14	39/64"	39/64"	41/64"	1"	27/64"

B BOLT CLEARANCE

# 8	1/4"	TEL8	3/8"	7/16"	1 1/16"	2"	1/4"
#10	5/16"	TEL10	29/64"	29/64"	1 1/16"	2"	5/16"

C "FLEXOCKETS"

# 8	1/4"	TESU8	3/8"	1/2"	—	1 1/4"	1/4"
#10	5/16"	TESU10	29/64"	1/2"	—	1 13/32"	5/16"

3/8" DRIVE**A STANDARD**

Wrench Size		Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Spline Size	Hex Size		Socket End A	Handle End B			
#12	3/8"	FES120	35/64"	21/32"	7/16"	1"	11/32"
#14	7/16"	FES140	5/8"	1 1/16"	9/16"	1 1/16"	27/64"
#16	1/2"	FES160	23/32"	3/4"	21/32"	1 1/16"	7/16"

B BOLT CLEARANCE

#12	3/8"	FEL120	35/64"	21/32"	13/4"	2 1/8"	11/32"
#14	7/16"	FEL140	41/64"	21/32"	13/4"	2 1/8"	27/64"
#18	9/16"	FEL180	53/64"	53/64"	1 55/64"	2 3/8"	29/64"
#20	5/8"	FEL200	57/64"	57/64"	1 55/64"	2 3/8"	17/32"

C "FLEXOCKETS"

#12	3/8"	FESU120	35/64"	3/4"	—	1 13/32"	11/32"
#14	7/16"	FESU140	5/8"	3/4"	—	2 3/64"	27/64"
#16	1/2"	FESU160	3/4"	3/4"	—	2 5/64"	7/16"
#18	9/16"	FESU180	13/16"	3/4"	—	1 35/64"	29/64"
#20	5/8"	FESU200	7/8"	3/4"	—	2 3/16"	17/32"

A STANDARD

Wrench Size		Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Spline Size	Hex Size		Socket End A	Handle End B			
#16	1/2"	SES161	23/32"	7/8"	23/32"	1 9/32"	7/16"
#18	9/16"	SES181	13/16"	7/8"	23/32"	1 9/32"	29/64"
#20	5/8"	SES201	7/8"	7/8"	23/32"	1 1/2"	17/32"
#22	1 1/16"	SES221	31/32"	31/32"	1 1/16"	1 5/8"	9/16"
#24	3/4"	SES241	13/64"	31/32"	25/32"	1 1/2"	9/16"
#26	13/16"	SES261	1 1/8"	1 1/16"	23/32"	1 1/2"	9/16"
#28	7/8"	SES281	13/16"	1 1/8"	3/4"	1 1/2"	9/16"
#30	15/16"	SES301	1 9/32"	1 7/32"	15/16"	1 1/2"	9/16"

B BOLT CLEARANCE

#26	13/16"	SEL261	1 1/8"	1 1/16"	3 1/4"	3 1/4"	2 1/32"
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C "FLEXOCKETS"

#18	9/16"	SESU181	13/16"	1 1/8"	—	2 7/8"	29/64"
#20	5/8"	SESU201	57/64"	1 1/8"	—	2 15/16"	17/32"
#22	1 1/16"	SESU221	31/32"	1 1/8"	—	3 1/64"	37/64"
#26	13/16"	SESU261	15/32"	1 1/8"	—	3 1/8"	21/32"
#30	15/16"	SESU301	1 9/32"	1 1/8"	—	3 3/8"	25/32"

A 3/4" DRIVE — STANDARD

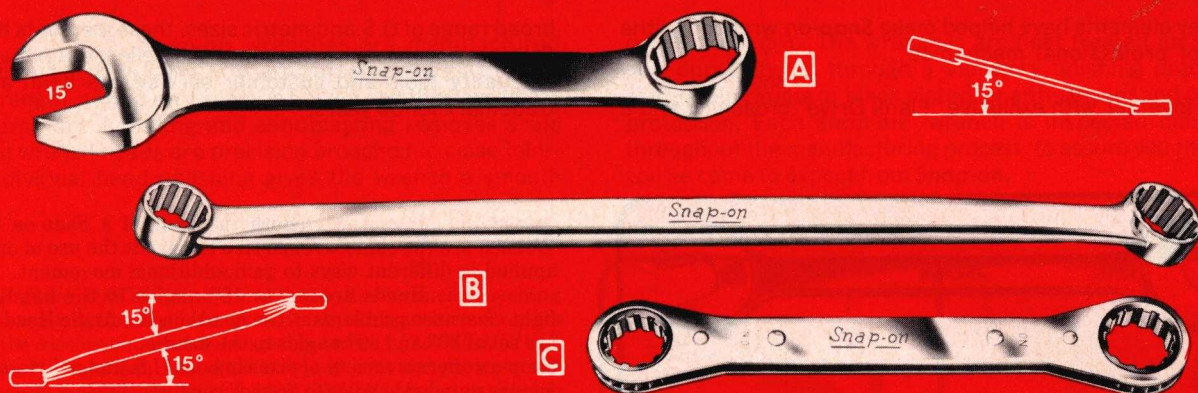
Wrench Size		Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Spline Size	Hex Size		Socket End A	Handle End B			
#24	3/4"	LES242	13/64"	13/8"	1"	13/4"	5/8"
#26	1 13/16"	LES262	15/32"	13/8"	1"	13/4"	21/32"
#28	7/8"	LES282	1 17/64"	13/8"	1 1/16"	1 13/16"	23/32"
#30	15/16"	LES302	13/8"	13/8"	1 1/8"	1 7/8"	25/32"
#34	1 1/16"	LES342	19/16"	19/16"	1 1/8"	2"	7/8"

A 1" DRIVE — STANDARD

Wrench Size		Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D	Broach Depth E
Spline Size	Hex Size		Socket End A	Handle End B			
#32	1"	LES323	1 29/64"	17/8"	1 7/16"	2 7/16"	13/16"
#34	1 1/16"	LES343	1 35/64"	17/8"	1 1/2"	2 1/2"	7/8"
#38	1 3/16"	LES383	1 23/32"	2"	1 5/8"	2 5/8"	1"

CHROME SPLINE WRENCHES/ADAPTORS

Spline



Spline wrenches **A**, **B** and **C** comply with Military Spec. MS-33787. Spline wrenches **A**, **B**, **C** and **D** are covered by U.S. Patent Nos. 3,354,757 and 3,367,516. Units **A**, **B** and **C** are covered by Canadian Patent No. 826,412. Spline wrenches service 6 and 12 point fasteners as well as spline fasteners. The High Performance Angle-Head "BOXOCKETS" **B**, are forged from aircraft-quality steel and heat treated to a high strength level. They can be used on high-tensile nuts and bolts.

A SHORT COMBINATIONS

Open end is angled 15°, box end is offset 15°

Wrench Size		Stock No.	Head Diameters	Head Depths	Overall Length
Spline Size	Hex Size				
#8	1/4"	OES8	17/32" & 3/8"	1/8" & 5/32"	4 1/2"
#10	5/16"	OES10	21/32" & 15/32"	11/64" & 15/64"	4 55/64"
#12	3/8"	OES12	25/32" & 9/16"	13/64" & 17/64"	5 7/32"
#14	7/16"	OES14	29/32" & 41/64"	15/64" & 5/16"	5 27/64"
#16	1/2"	OES16	11/16" & 23/32"	1/4" & 5/16"	5 47/64"
#18	9/16"	OES18	13/16" & 13/16"	17/64" & 21/64"	6 1/32"
#20	5/8"	OES20	15/16" & 57/64"	9/32" & 11/32"	6 5/16"
#22	11/16"	OES22	17/16" & 31/32"	19/64" & 23/64"	6 39/64"
#24	3/4"	OES24	19/16" & 11/16"	5/16" & 3/8"	6 29/32"

OES709K Set. Wrenches OES8 thru OES24 in C94 Kit Bag.

OES709 Set. Wrenches OES8 thru OES24.

B HIGH PERFORMANCE ANGLE-HEAD "BOXOCKETS"

Wrench Size		Stock No.	Head Diameters	Head Depths	Overall Length
Spline Sizes	Hex Sizes				
#7 & #9	7/32" & 9/32"	XDES79	11/32" & 7/16"	11/64" & 13/64"	5 15/16"
#8 & #10	1/4" & 5/16"	XDES810	3/8" & 15/32"	3/16" & 7/32"	7 1/4"
#12 & #14	3/8" & 7/16"	XDES1214	35/64" & 41/64"	5/16" & 11/32"	8 1/2"
#18 & #20	9/16" & 5/8"	XDES1820	13/16" & 57/64"	25/64" & 13/32"	9 5/8"
#26 & #30	13/16" & 15/16"	XDES2630	15/32" & 15/16"	1/2" & 9/16"	12 3/4"
#28 & #32	7/8" & 1"	XDES2832	1 1/4" & 1 1/16"	17/32" & 37/64"	14"

XDES606 Set. "BOXOCKETS" XDES79 thru XDES2832.

C RATCHETING "BOXOCKETS"

CAUTION: Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance. Worn parts should be replaced with contents of repair kit. Parts should not be replaced individually.

Wrench Size		Stock No.	Head Diameters	Head Depth	Gear Teeth	Overall Length
Spline Sizes	Hex Sizes					
#8 & #10	1/4" & 5/16"	RES810	9/16" & 5/8"	11/32"	16 & 18	49/32"
#12 & #14	3/8" & 7/16"	RES1214	3/4" & 7/8"	11/32"	20 & 22	5 1/2"
#18 & #20	9/16" & 5/8"	RES1820	1 1/8" & 1 1/4"	13/32"	20 & 22	7 15/16"
#26 & #30	13/16" & 15/16"	RES2630	1 1/2" & 1 9/16"	7/16"	22 & 22	9 3/4"

RES604 Set. "BOXOCKETS" RES810 thru RES2630.

TORQUE ADAPTORS

"FRES" and "SRES" series Spline Torque Adaptors feature precision wrench broaching of 12 straight sided spline teeth that engage the spline of the spline fastener. A hole through the square drive end allows either friction ball or lock button retention. 3/8" drive units have a center-to-center length of 2"; 1/2" drive units have a center-to-center length of 3"

3/8" SQUARE DRIVE

Stock Number	Hex Size	Spline Size	Head Diameter Spline & Square	Head Depth Spline & Square
FRES7	7/32"	#7	.375" & .750"	1/4" & 7/16"
FRES8	1/4"	#8	.400" & .750"	1/4" & 7/16"
FRES9	9/32"	#9	.445" & .750"	1/4" & 7/16"
FRES10	5/16"	#10	.490" & .750"	1/4" & 7/16"
FRES12	3/8"	#12	.590" & .750"	5/16" & 7/16"
FRES14	7/16"	#14	.680" & .750"	5/16" & 7/16"
FRES16	1/2"	#16	.745" & .750"	5/16" & 7/16"
FRES18	9/16"	#18	.825" & .750"	3/8" & 7/16"
FRES20	5/8"	#20	.895" & .750"	3/8" & 7/16"
FRES22	11/16"	#22	.997" & .750"	1/2" & 7/16"
FRES24	3/4"	#24	1.08" & .750"	9/16" & 7/16"

FRES611 Set. Adaptors FRES7 thru FRES24.



1/2" SQUARE DRIVE

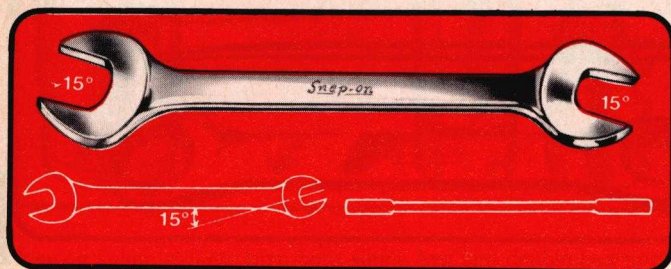
Stock Number	Hex Size	Spline Size	Head Diameter Spline & Square	Head Depth Spline & Square
SRES18	9/16"	#18	.818" & 1.04"	13/32" & 1/2"
SRES20	5/8"	#20	.900" & 1.04"	1/2" & 1/2"
SRES22	11/16"	#22	.989" & 1.04"	1/2" & 1/2"
SRES24	3/4"	#24	1.08" & 1.04"	1/2" & 1/2"
SRES26	13/16"	#26	1.16" & 1.04"	1/2" & 1/2"
SRES28	7/8"	#28	1.26" & 1.04"	1/2" & 1/2"

SRES306 Set. Adaptors SRES18 thru SRES28.

QUALITY & COMFORT... *Snap-on* WRENCHES

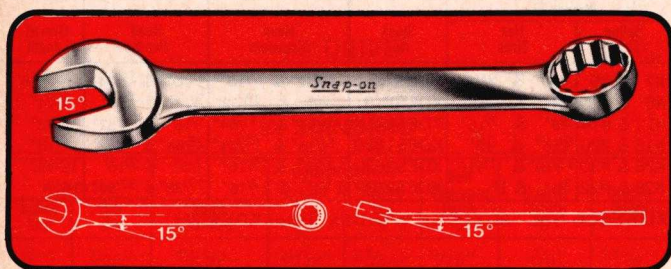
Three key elements have helped make **Snap-on** wrenches, "the choice of professional mechanics"... **EXTENSIVE PRODUCT RESEARCH, MANUFACTURING REFINEMENTS** and **CUSTOMER PRIDE**. Together with exclusive "Flank Drive" broaching and a

broad range of U.S. and metric sizes, these elements have made **Snap-on** wrenches the standards of excellence. A proud tradition to quality tools and customer service has been a **Snap-on** trademark for 60 years.



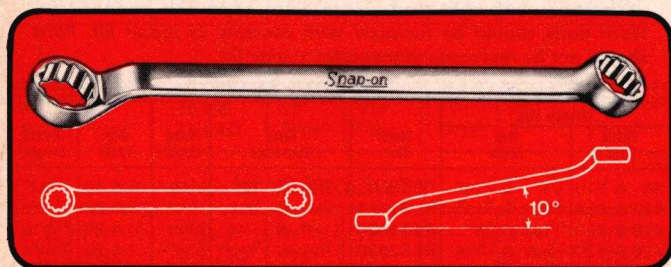
OPEN END WRENCHES

Additional Movement... Both the ends of a **Snap-on** Open End Wrench are the same wrench size to permit the use of one wrench, applied in different ways to gain additional movement. **Clearance Problems...** Heads are set at 15° angles to the handles to help fight clearance problems... the heads on the Angle Head Wrenches are set at 30° and 60° angles to the handle. **Variety and Comfort...** **Snap-on** offers a variety of sizes in both U.S. and metric, all of which feature rounded handles to provide comfort. **Leverage and Control...** is provided by proper handle-lengths and balanced head weights. **Finish...** **Snap-on** Open End Wrenches are available in either black or chrome finish.



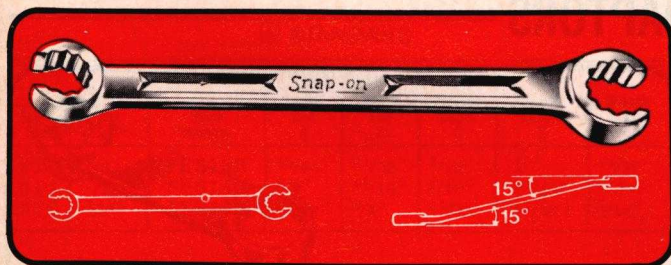
COMBINATION WRENCHES

Wide Selection... **Snap-on** has available for you, the "professional mechanic," a variety of Combination Wrenches in both U.S. and metric sizes. **Comfort and Leverage...** Rounded, proper length handles provide maximum leverage and hand comfort. **Wrench Openings...** Each unit has a "BOXOCKET" at one end and an Open End of the same size at the opposite end. The Open End is set at a 15° angle to the handle and provides fast nut turning even in limited areas where the handle swing is restricted.



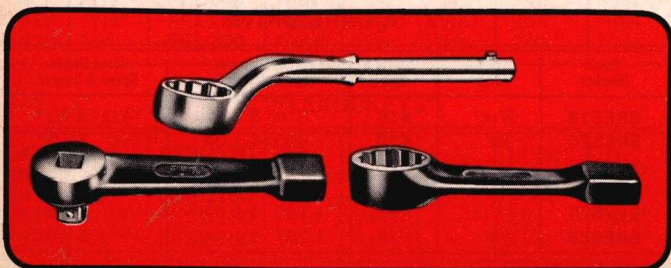
"BOXOCKET" WRENCHES

Wrench Openings... **Snap-on** "BOXOCKETS" are double ended having two different size wrench openings on the same handle. **Wrench Heads...** Heads are offset so recessed fasteners may be reached more easily. **Variety...** Both U.S. and metric versions are available with both six and twelve point openings. **Finish...** "BOXOCKETS" are available with either a black or chrome finish. **Advantage Over Socket and Handle...** "BOXOCKETS" can handle nuts located on long studs which pass through the "BOXOCKET" opening.



FLARE NUT WRENCHES

Special Design... Built for the type of soft metal fittings found on fuel lines, power steering and air conditioning lines. **Offset Wrench Heads...** Heads are offset at a 15° angle to the handle to help fight clearance problems. **Angled Wrench Openings...** Openings on the "RXS" series are also angled at a 15° angle to the handle to provide fast nut turning even in limited areas where handle swing is restricted. **Variety...** **Snap-on** offers a variety of styles in both U.S. and metric sizes in both six and twelve point wrench openings.



HEAVY DUTY WRENCHES

Extra Turning Power... **Snap-on** has designed a line of heavy duty wrenches built to provide extra nut turning power needed in power plants, oil fields, and other heavy industry. Offset and Straight "BOXOCKETS," Open Ends, Tubular Handles, Striking "BOXOCKETS," Sledge "BOXOCKETS" and Slugging Wrenches are available with either chrome or black finish.

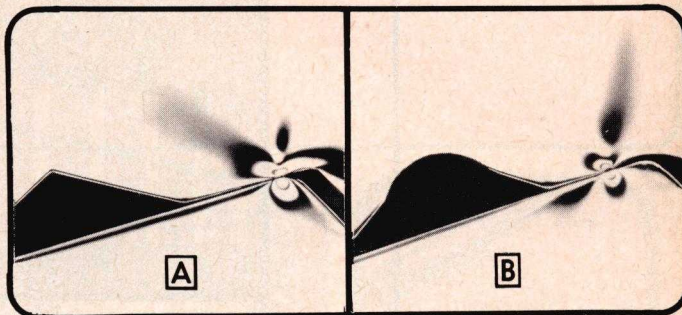
Special Wrenches... In addition to the wrenches shown and described here **Snap-on** has available a variety of wrenches for special nut turning jobs such as tightening head bolts or making brake adjustments.

DESIGN & VERSATILITY... **Snap-on** WRENCHES

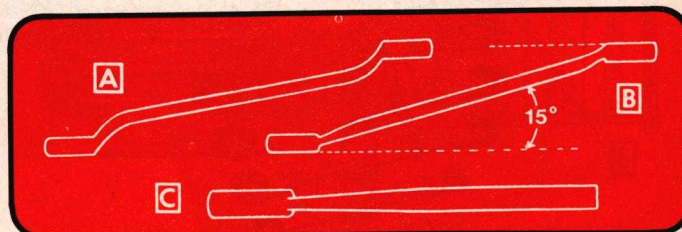
MANUFACTURING... *Snap-on* wrenches are manufactured using high carbon alloy steel. Following precision forging to give it extra strength, a *Snap-on* wrench is heated and then cooled for added durability. Tumbling and sandblasting removes scale before the wrench heads are precision broached to close tolerances. Individual hand polishing gives the wrench a smooth

comfortable grip. The wrenches are heat treated for strength and durability, go through a vibratory finishing process and are nickel-chrome or black plated for anti-solvent and corrosion protection. Each *Snap-on* wrench is inspected many times throughout the manufacturing process, to assure you the quality you've come to expect from *Snap-on*.

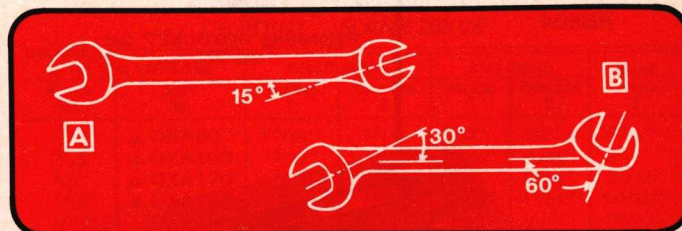
MORE TURNING POWER and LESS FASTENER DAMAGE... *Snap-on* "FLANK DRIVE" single and double hex wrench broaching is the most revolutionary idea in wrench design since *Snap-on* pioneered the concept of the interchangeable socket. "FLANK DRIVE" assures you of longer tool life, speeds repair jobs and protects nut and bolt heads. Wrenches with "FLANK DRIVE" configuration are 5 to 10% stronger than comparable wrenches with ordinary broaching and provide a 15 to 20% increase in application pressure without damage to the fastener. "FLANK DRIVE" puts the turning power of the wrench on the flats or "flanks" of the fastener rather than on its corners. Result — much more turning power and less wear. Illustration "A" shows conventional drive; illustration "B" shows "FLANK DRIVE."



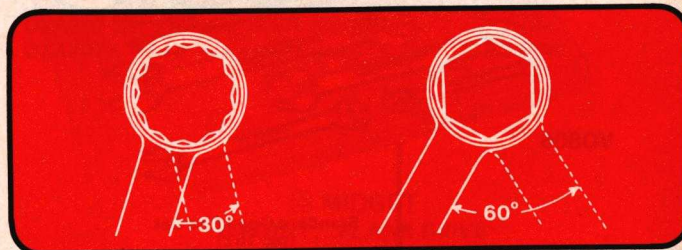
REACH, CLEARANCE and LEVERAGE... *Snap-on* provides three basic handle designs. The "Offset" type (A) is designed to provide knuckle clearance, the "Angle" type (B) has the head set at an angle to the handle. This also provides knuckle clearance and the ability to pass over obstructions. It can be used in tight spots where the "Offset" type will not enter. The "Straight" type (C) gives the most leverage but does not have the clearance features of the other types.



BETTER CONTROL and MAXIMUM LEVERAGE... *Snap-on* wrenches feature balanced head weights for better control and proper handle lengths for maximum leverage. Open Ends have a continuous arc design which distributes stress over the entire radius for greater strength. A 15° wrench head angle (A) helps to fight clearance problems. The ends on the Angle Head wrenches (B) are set at 30° and 60° to permit use of one wrench, applied in different ways to gain added movement. The "BOXOCKET" wrench end forms a continuous circle of strength around the fastener.



SPEED and STRENGTH... The "BOXOCKET" opening is the strongest type of wrench you can use... openings cannot spread and torque is applied to all sides of the nut. Two types of wrench openings are commonly used on "BOXOCKETS": The double hexagon opening, which is used in most sizes, has 12 corners and permits turning a nut with a 30° handle movement. The single hexagon opening has 6 corners and requires a 60° handle movement. Single hex openings are used on small sizes of "BOXOCKETS" as they afford a better grip on small nuts with less danger of slipping, especially if the nuts run slightly undersize or have damaged corners.



WRENCH SAFETY TIPS

1. Never "push" on a wrench... pull toward you for better control and greater safety.
2. Never strike a wrench with hammer or other tool, or use a pipe for more leverage... this could result in personal injury or tool damage.
3. Select the proper wrench to speed up applications and avoid hazardous operations.
4. On ratcheting wrenches, always keep mechanism clean and lubricated with light grade oil.
5. Get a solid, square fit to minimize strain on points of contact and avoid wrench slippage.
6. Always keep wrenches clean for better grip and longer lasting finish.

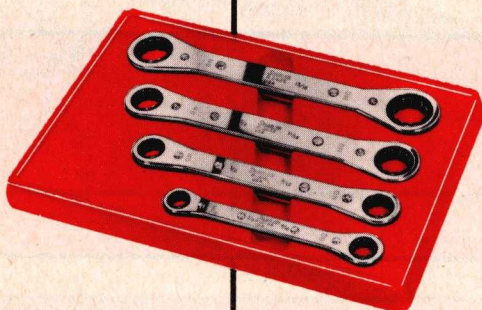
CONVENIENCE & VARIETY... *Snap-on* WRENCH SETS

Snap-on wrench sets are designed to include a variety of wrench sizes and handle lengths to fill all of your fastener turning problems. In addition to the chrome sets illustrated here, *Snap-on* also has black finish sets available. Both chrome and black sets are available in U.S. and metric sizes. Each set is packaged in either a vinyl

kit bag or molded plastic organizer tray for tool storage and mobility. The kit bags and trays also provide a quick method of wrench control and inventory. Components of these sets are found on the following pages.



OEX709K
Long Handle Set (pg. 96)



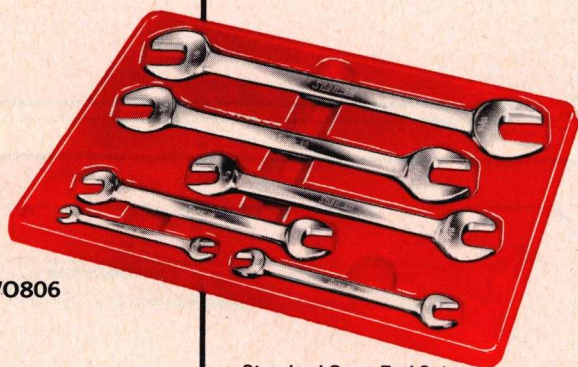
RB604

Ratcheting "BOXOCKET" Set
(pg. 97)



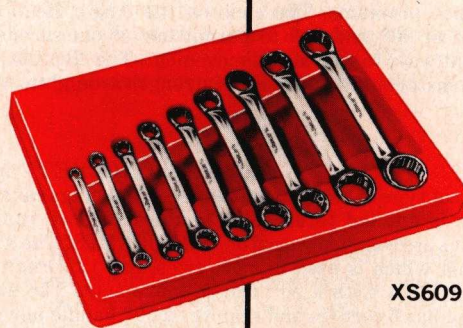
VS807A

Angle-Head Open End Set
(pg. 101)



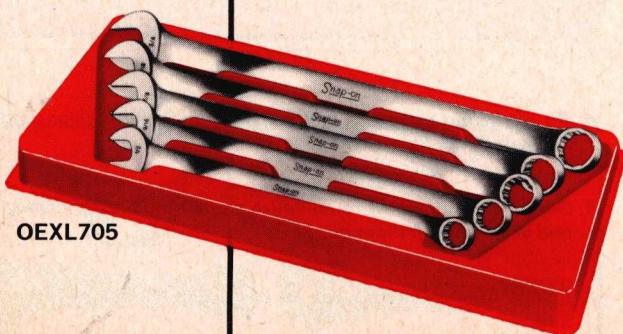
VO806

Standard Open End Set
(pg. 101)



XS609

Offset "BOXOCKET" Set
(pg. 99)



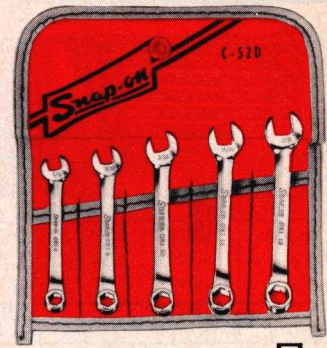
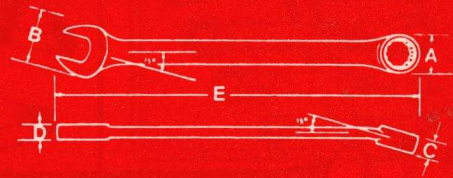
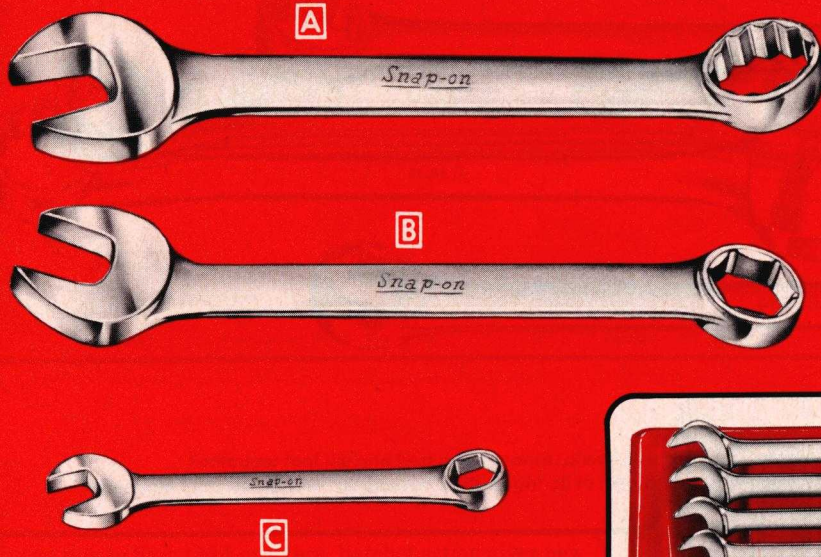
OEXL705

Extra Long Handle Combination Set
(pg. 96)



XO605

Deep Offset "BOXOCKET" Set
(pg. 98)



Snap-on WRENCH FEATURES

- **"FLANK DRIVE"**... Assures you of longer tool life, speeds repair jobs and protects nut and bolt heads.
- **FORGED**... For greater strength.
- **PRECISION BROACHED**... Provides secure fit for accurate work.
- **HEAT TREATED**... Maximum strength, longer wear.
- **FINISH**... Chrome plating helps prevent rust; easy to clean.
- **SMOOTH EDGES**... Provides comfort.
- **PROPER HANDLE LENGTHS**... Provide correct leverage and needed reach.
- **OFFSET BOX END, ANGLED OPEN END**... Box end clears obstructions... angled open end works with a 30° movement.
- **THIN WALLS**... Gets into close working areas.

A SHORT STANDARD 12 POINT...FLANK DRIVE

Fed. Spec. GGG-W-636E		Head Diameters		Head Depths		Overall Length E
Wrench Size	Stock No.	Box End A	Open End B	Box End C	Open End D	
1/4"	OEX80	25/64"	17/32"	5/32"	1/8"	4 1/2"
9/32"	OEX90	27/64"	19/32"	11/64"	9/64"	4 3/4"
5/16"	OEX100	15/32"	21/32"	15/64"	11/64"	4 7/8"
11/32"	OEX110	17/32"	23/32"	1/4"	3/16"	5 1/8"
3/8"	OEX120	17/32"	25/32"	17/64"	13/64"	5 7/32"
7/16"	OEX140	5/8"	29/32"	5/16"	15/64"	5 7/16"
1/2"	OEX160	23/32"	1 1/16"	5/16"	1/4"	5 3/4"
9/16"	OEX180	13/16"	1 3/16"	21/64"	17/64"	6"
5/8"	OEX200	7/8"	1 5/16"	11/32"	9/32"	6 5/16"
11/16"	OEX220	31/32"	1 7/16"	23/64"	19/64"	6 19/32"
3/4"	OEX240	1 1/16"	1 1/2"	3/8"	5/16"	6 7/8"
13/16"	OEX260	1 9/64"	1 11/16"	13/32"	3/8"	7 3/16"
7/8"	OEX280	1 7/32"	1 13/16"	17/32"	3/8"	7 19/32"
15/16"	OEX300	1 23/64"	1 15/16"	9/16"	3/8"	7 55/64"
1"	OEX320	1 7/16"	2 1/32"	5/8"	7/16"	8 5/32"

- OEXS709 Set.** Includes Wrenches OEX100 thru OEX240 in a plastic tray.
OEXS709K Set. Wrenches OEX100 thru OEX240 in C94 Kit Bag.
OEXS715 Set. Wrenches OEX80 thru OEX320.

B SHORT OFFSET OPEN-END 6 POINT...FLANK DRIVE

Fed. Spec. GGG-W-636E		Head Diameters		Head Depths		Overall Length E
Wrench Size	Stock No.	Box End A	Open End B	Box End C	Open End D	
1/4"	▲ OXA80	25/64"	17/32"	5/32"	1/8"	4 3/8"
5/16"	▲ OXA100	15/32"	11/16"	5/64"	11/64"	5"
3/8"	▲ OXA120	17/32"	13/16"	17/64"	13/64"	5 7/32"
7/16"	▲ OXA140	5/8"	15/16"	19/64"	15/64"	5 7/16"
1/2"	OXA160	11/16"	1 1/16"	5/16"	1/4"	5 3/4"
9/16"	OXA180	13/16"	1 3/16"	21/64"	17/64"	6"
5/8"	OXA200	7/8"	1 9/32"	11/32"	9/32"	6 5/16"

OXA707 Set. Wrenches OXA80 thru OXA200.

OXA707K Set. Wrenches OXA80 thru OXA200 in C74D Kit Bag.

C MIDGET 6 POINT...FLANK DRIVE

Fed. Spec. GGG-W-636E		Head Diameters		Head Depths		Overall Length E
Wrench Size	Stock No.	Box End A	Open End B	Box End C	Open End D	
1/8"	*OXI4	7/32"	9/32"	1/8"	3/32"	2 63/64"
5/32"	*OXI5	17/64"	5/16"	9/64"	7/64"	3"
3/16"	*OXI6	19/64"	3/8"	9/64"	7/64"	3 1/32"
7/32"	*OXI7	11/32"	7/16"	5/32"	1/8"	3 3/64"
1/4"	OXI8	3/8"	17/32"	5/32"	1/8"	3 1/16"
9/32"	OXI9	27/64"	19/32"	11/64"	9/64"	3 9/32"
5/16"	OXI10	29/64"	21/32"	3/16"	5/32"	3 15/32"
11/32"	OXI11	1/2"	23/32"	7/32"	11/64"	3 11/16"
3/8"	OXI12	17/32"	3/4"	7/32"	3/16"	3 7/8"

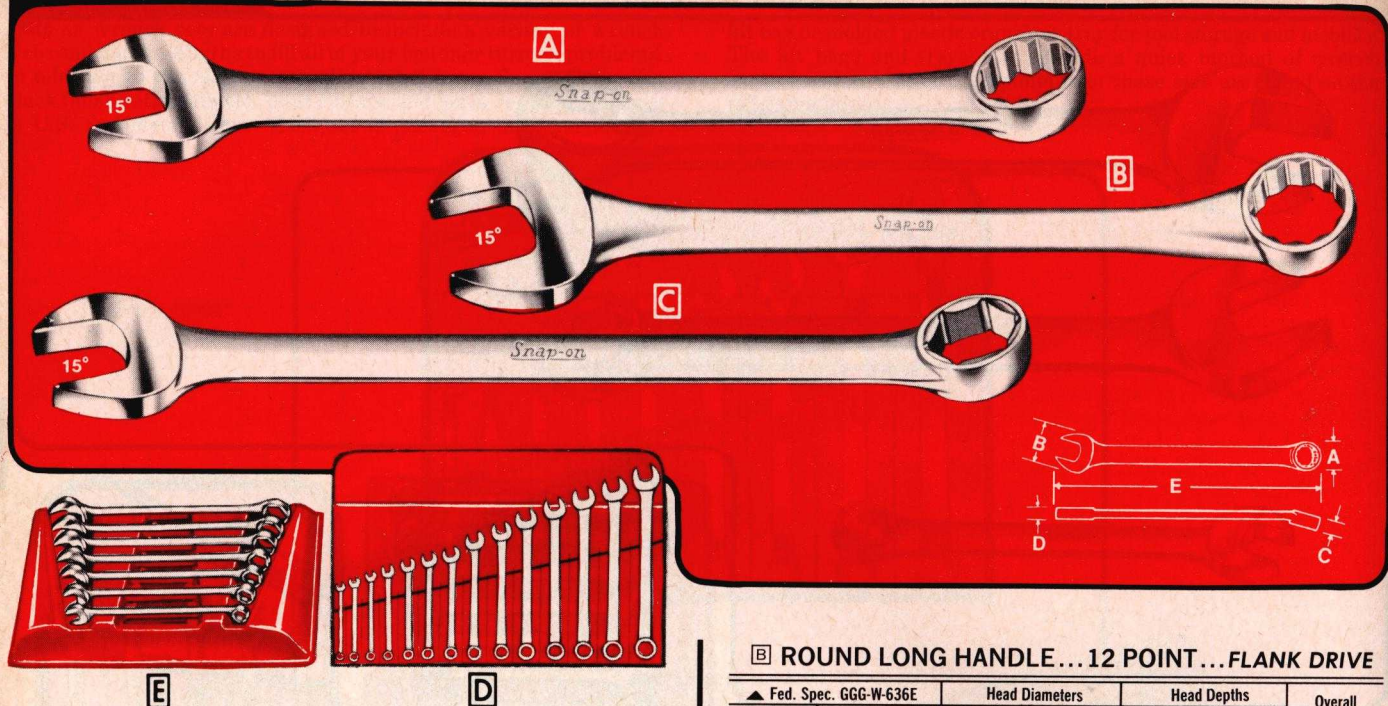
*Standard broach.

OXI705 Set. Wrenches OXI8 thru OXI12.

OXI705K Set. Wrenches OXI8 thru OXI12 in C52D Kit Bag.

OXI709 Set. Wrenches OXI4 thru OXI12.

OXI709K Set. Wrenches OXI4 thru OXI12 in C90 Kit Bag.



Open ends angled at 15°. Box ends offset at 15°

A LONG HANDLE...12 POINT...FLANK DRIVE

Wrench Size	Stock No.	Head Diameters		Head Depths		Overall Length E
		Box End A	Open End B	Box End C	Open End D	
5/16"	OEX10	15/32"	21/32"	15/64"	11/64"	6"
3/8"	OEX12	19/32"	25/32"	9/32"	13/64"	6 17/32"
7/16"	OEX14	21/32"	29/32"	5/16"	15/64"	7 3/32"
1/2"	OEX16	3/4"	1 1/16"	23/64"	1/4"	7 21/32"
9/16"	OEX18	27/32"	13/16"	3/8"	17/64"	8 5/32"
5/8"	OEX20	15/16"	1 5/16"	13/32"	9/32"	8 23/32"
11/16"	OEX22	1"	1 7/16"	7/16"	19/64"	9 1/4"
3/4"	OEX24	1 3/32"	1 9/16"	7/16"	5/16"	9 31/32"
13/16"	OEX26	1 3/16"	1 11/16"	1/2"	3/8"	11"
7/8"	OEX28	1 9/32"	1 13/16"	17/32"	3/8"	11 7/8"
15/16"	OEX30	1 11/32"	1 15/16"	9/16"	3/8"	13 9/64"
1"	OEX32	1 7/16"	2 1/16"	5/8"	7/16"	13 29/32"
1 1/16"	OEX34	1 9/16"	2 3/16"	11/16"	15/32"	15 1/4"
1 1/8"	OEX36	1 12/32"	2 5/16"	3/4"	1/2"	15 7/8"
1 3/16"	OEX38	1 3/4"	2 13/32"	3/4"	1/2"	16 3/8"
1 1/4"	OEX40	1 27/32"	2 9/16"	3/4"	1/2"	16 15/16"
1 1/2"	OEX42	1 29/32"	2 11/16"	3/4"	1/2"	17 15/16"
1 3/8"	OEX44	2"	2 13/16"	3/4"	1/2"	18 9/32"
1 7/16"	OEX46	2 1/16"	2 15/16"	7/8"	9/16"	20"
1 1/2"	OEX48	2 5/32"	3 1/16"	7/8"	5/8"	21 11/32"
1 9/16"	OEX50	2 15/64"	3 1/4"	7/8"	5/8"	21 1/2"
1 5/8"	OEX52	2 5/16"	3 5/16"	7/8"	5/8"	22 5/32"

B ROUND LONG HANDLE...12 POINT...FLANK DRIVE

Wrench Size	Stock No.	Head Diameters		Head Depths		Overall Length E
		Box End A	Open End B	Box End C	Open End D	
1 1/16"	OEX54	2 1/2"	3 5/8"	1 1/16"	3/4"	24 3/8"
1 3/4"	OEX56	2 9/16"	3 5/8"	1 1/16"	3/4"	25 3/4"
1 13/16"	OEX58	2 11/16"	3 5/8"	1 1/8"	3/4"	27 1/4"
1 7/8"	OEX60	2 13/16"	4"	1 3/16"	7/8"	28 1/2"
2"	OEX64	2 15/16"	4"	1 1/4"	7/8"	29 5/8"

OEX705 Set. Wrenches OEX54 thru OEX64.

C LONG HANDLE...6 POINT...FLANK DRIVE

Wrench Size	Stock No.	Head Diameters		Head Depths		Overall Length E
		Box End A	Open End B	Box End C	Open End D	
5/16"	▲ OSH10	15/32"	21/32"	15/64"	11/64"	5 7/8"
11/32"	▲ OSH11	17/32"	23/32"	1/4"	3/16"	6 1/4"
3/8"	▲ OSH12	19/32"	25/32"	9/32"	13/64"	6 9/16"
7/16"	▲ OSH14	21/32"	29/32"	21/64"	15/64"	7 3/32"
1/2"	▲ OSH16	3/4"	1 1/16"	23/64"	1/4"	7 21/32"
9/16"	▲ OSH18	27/32"	13/16"	3/8"	1/4"	8 5/16"
5/8"	▲ OSH20	15/16"	15/16"	13/32"	9/32"	8 13/16"
11/16"	▲ OSH22	1"	1 7/16"	7/16"	19/64"	9 1/4"
3/4"	▲ OSH24	1 3/32"	1 9/16"	7/16"	5/16"	9 3/4"

E OSH707 Set. Wrenches OSH12 thru OSH24 in a plastic tray.

OSH709 Set. Wrenches OSH10 thru OSH24 in a plastic tray.

OSH709K Set. Wrenches OSH10 thru OSH24 in C92C Kit Bag.

A EXTRA LONG HANDLE...12 POINT...FLANK DRIVE

Wrench Size	Stock No.	Head Diameters		Head Depths		Overall Length E
		Box End A	Open End B	Box End C	Open End D	
1/2"	▲ OEXL16	3/4"	1 1/16"	23/64"	1/4"	9"
9/16"	▲ OEXL18	27/32"	13/16"	3/8"	17/64"	10"
5/8"	▲ OEXL20	59/64"	15/16"	13/32"	9/32"	11"
11/16"	▲ OEXL22	1 1/64"	17/16"	7/16"	19/64"	12"
3/4"	▲ OEXL24	1 7/64"	1 9/32"	7/16"	5/16"	13"

OEXL705 Set. Wrenches OEXL16 thru OEXL24 in a plastic tray.

LONG HANDLE SETS

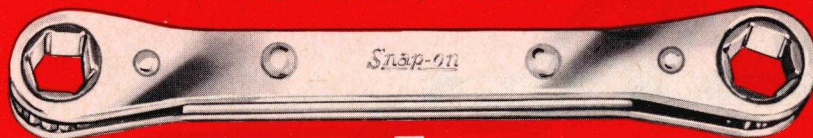
Drop "K" from set number if kit bag is not desired.

Wrench Size	Wrench Stock No.	12 Point Set Numbers					Wrench Size	Wrench Stock No.	12 Point Set Numbers				
		OEX707	OEX709K	OEX711K	OEX714K	OEX722K			OEX707	OEX709K	OEX711K	OEX714K	OEX722K
5/16"	OEX10	...	...	...	...	X	1"	OEX32	...	...	X	X	X
3/8"	OEX12	X	X	X	X	X	1 1/16"	OEX34	...	...	X	X	X
7/16"	OEX14	X	X	X	X	X	1 1/8"	OEX36	...	...	X	X	X
1/2"	OEX16	X	X	X	X	X	1 3/16"	OEX38	...	...	...	X	X
9/16"	OEX18	X	X	X	X	X	1 1/4"	OEX40	...	...	X	X	X
5/8"	OEX20	X	X	X	X	X	1 5/16"	OEX42	...	...	...	X	X
11/16"	OEX22	X	X	X	X	X	1 3/8"	OEX44	...	...	...	X	X
3/4"	OEX24	X	X	X	X	X	1 7/16"	OEX46	...	...	...	X	X
13/16"	OEX26	...	X	X	X	X	1 1/2"	OEX48	...	...	...	X	X
7/8"	OEX28	...	X	X	X	X	1 9/16"	OEX50	...	...	...	X	X
15/16"	OEX30	...	...	X	X	X	1 5/8"	OEX52	...	...	...	X	X
Kit Bag		Tray	C92C	C114B	C141B	C220	Kit Bag		Tray	C92C	C114B	C141B	C220

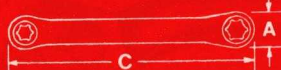
RATCHETING "BOXOCKETS"

Wrenches

6 and 12 Pt. MODELS AVAILABLE



A



B



CAUTION: For longer tool life and best performance, always keep wrench opening free of dirt and grease. Also periodically clean and lubricate ratchet mechanism with a light oil to help ensure safe operation.

Flat and thin to fit in tight quarters. Ratchet action gives new bite with limited handle movement. Fed. Spec. GGG-W-636E applies to both 6 and 12 point wrenches.

A 6 POINT ... FLANK DRIVE

Wrench Sizes	Stock Number	Head Widths A	Head Depth B	Overall Length C
1/4" & 5/16"	R810S	9/16" & 5/8"	11/32"	4 9/32"
5/16" & 3/8"	R1012S	5/8" & 3/4"	11/32"	4 15/16"
3/8" & 7/16"	R1214S	3/4" & 7/8"	11/32"	5 1/2"
1/2" & 9/16"	R1618S	15/16" & 1"	13/32"	6 31/32"
5/8" & 11/16"	R2022S	1 1/8" & 1 1/4"	13/32"	7 15/16"
3/4" & 13/16"	R2426S	1 3/8" & 1 1/2"	7/16"	7 27/32"
1 1/8" & 1 1/4"	R3640S	2 7/64" & 2 7/64"	9/16"	12 51/64"

B RB604S Set. Includes wrenches R1214S, thru R2426S in a plastic tray.

RB606SK Set. All wrenches above except R1012S and R3640S, but including R2830 (12 point) in C62B Kit Bag.

RB606S Set. Above set without kit bag.

12 POINT ... FLANK DRIVE

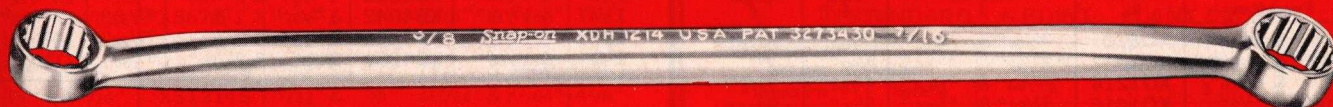
Wrench Sizes	Stock Number	Head Widths A	Head Depth B	Overall Length C
1/4" & 5/16"	R810A	9/16" & 5/8"	11/32"	4 9/32"
5/16" & 11/32"	R1011	5/8" & 3/4"	11/32"	4 15/16"
5/16" & 3/8"	R1012	5/8" & 3/4"	11/32"	4 15/16"
3/8" & 7/16"	R1214A	3/4" & 7/8"	1 1/32"	5 1/2"
1/2" & 9/16"	R1618	15/16" & 1"	13/32"	6 31/32"
9/16" & 5/8"	R1820	1 1/8" & 1 1/4"	13/32"	7 15/16"
5/8" & 11/16"	R2022	1 1/8" & 1 1/4"	13/32"	7 15/16"
5/8" & 3/4"	R2024	1 1/8" & 1 1/4"	13/32"	7 15/16"
3/4" & 13/16"	R2426	1 3/8" & 1 1/2"	7/16"	7 27/32"
3/4" & 7/8"	R2428	1 3/8" & 1 1/2"	7/16"	8 5/8"
7/8" & 15/16"	R2830	1 1/2" & 1 1/2"	7/16"	8 11/16"
15/16" & 1"	R3032	1 9/16" & 1 11/16"	7/16"	10"

RB604 Set. Includes wrenches R1214A, R1618, R2022 and R2426 in a plastic tray.

RB606BK Set. Includes six wrenches, R810A, R1214A, R1618, R2022, R2426 and R2830 in C62B Kit Bag.

RB606B Set. Includes six wrenches, R810A, R1214A, R1618, R2022, R2426 and R2830 without kit bag.

HIGH PERFORMANCE "BOXOCKETS"



HIGH PERFORMANCE "BOXOCKETS"

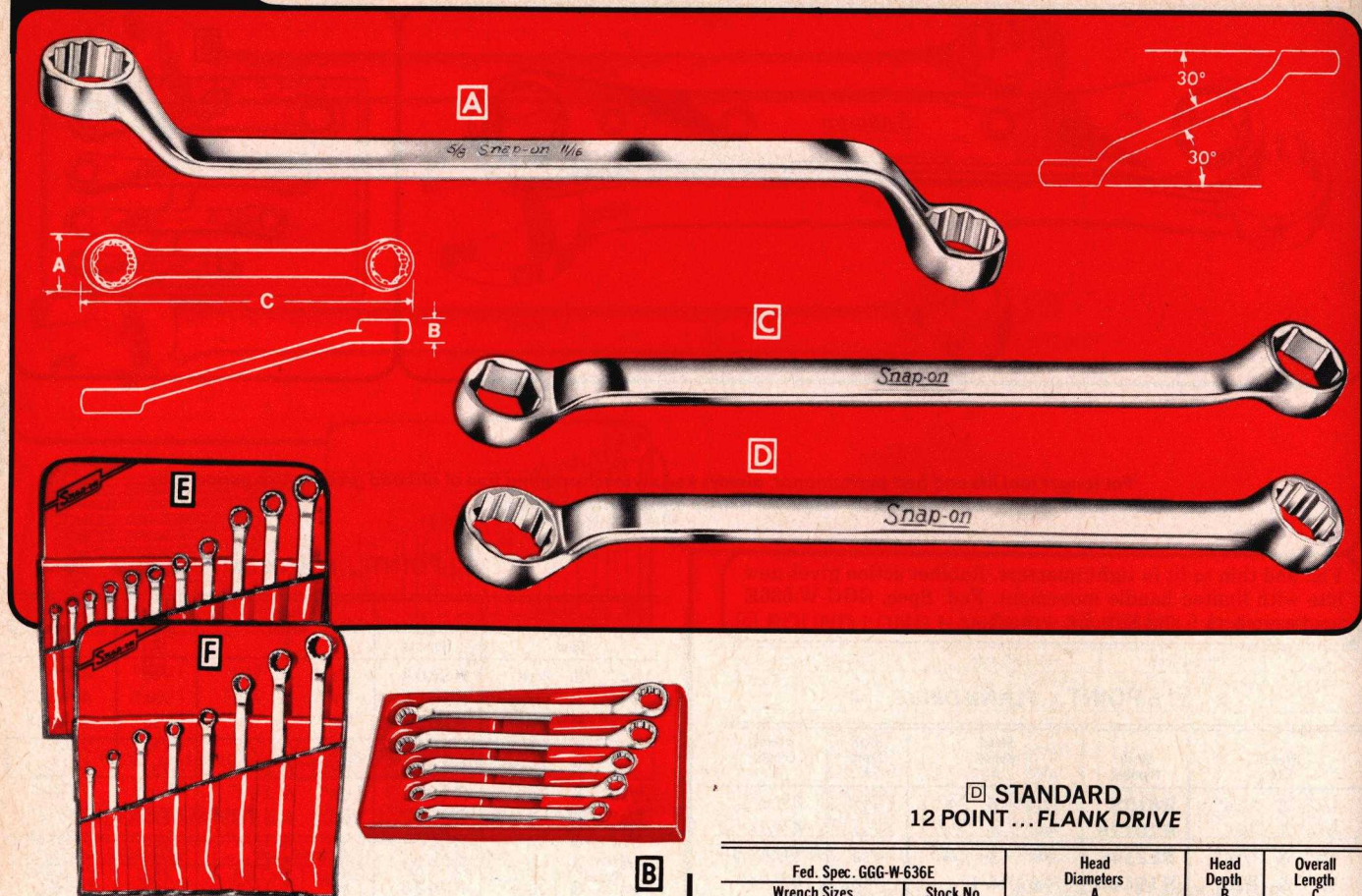
12 POINT ... FLANK DRIVE

These high performance wrenches are forged from aircraft-quality steel, heat treated to a high strength level. Both heads are offset 15° Fed. Spec. GGG-W-1437 and GGG-W-636E apply to black and chrome series, with Federal Spec. XWS-2149 also applying to chrome.

Wrench Sizes	Stock Number		Head Diameters A	Head Depths B	Overall Length C
	Black	Chrome			
7/32" & 1/4"	GXDH78	XDH78	1 1/32" & 1 3/32"	1 1/64" & 3/16"	6 3/32"
1/4" & 5/16"	GXDH810	XDH810A	1 3/32" & 1 5/32"	3/16" & 7/32"	7 1/4"
5/16" & 3/8"	...	XDH1012A	7/16" & 37/64"	7/32" & 5/16"	7 7/8"
3/8" & 7/16"	GXDH1214	XDH1214	37/64" & 2 1/32"	5/16" & 11/32"	8 1/2"
7/16" & 1/2"	...	XDH1416	2 1/32" & 3/4"	11/32" & 11/32"	8 7/8"
1/2" & 9/16"	GXDH1618	XDH1618	3/4" & 53/64"	11/32" & 3/8"	9 1/4"
9/16" & 5/8"	...	XDH1820	53/64" & 29/32"	3/8" & 7/16"	9 5/8"
5/8" & 3/4"	...	XDH2024	29/32" & 1 1/16"	7/16" & 15/32"	10 7/8"
11/16" & 3/4"	...	XDH2224	1" & 1 5/64"	7/16" & 15/32"	11 1/8"
1 1/16" & 13/16"	...	XDH2226	1" & 1 11/64"	7/16" & 1/2"	11 3/8"

XDH610 Set. Includes chrome wrenches XDH78 thru XDH2226.

Metric wrenches on pages 124-127 and special application pages.



A DEEP OFFSET
12 POINT... FLANK DRIVE

Heads are deeply offset at a 30° angle to handles so recessed fasteners may be reached more easily. Fed. Spec. GGG-W-636E apply to all units below, plus GGG-W-1437 applies to XO1214, 1618, 1820, 2024 and 2226.

Fed. Spec. GGG-W-636E		Head Diameters A	Head Depth B	Overall Length C
Wrench Sizes	Stock No.			
1/4" & 5/16"	XO810	25/64" & 15/32"	17/64"	67/16"
5/16" & 3/8"	XO1012	15/32" & 35/64"	9/32"	7"
3/8" & 7/16"	XO1214	35/64" & 41/64"	19/64"	7 1/2"
7/16" & 1/2"	XO1416	41/64" & 47/64"	5/16"	8"
1/2" & 9/16"	XO1618	47/64" & 13/16"	11/32"	8 1/2"
9/16" & 5/8"	XO1820	13/16" & 29/32"	3/8"	9"
5/8" & 11/16"	XO2022	29/32" & 63/64"	13/32"	9 1/2"
5/8" & 3/4"	XO2024	29/32" & 15/64"	7/16"	9 3/4"
11/16" & 13/16"	XO2226	63/64" & 111/64"	1/2"	10 1/2"
3/4" & 7/8"	XO2428	15/64" & 11/4"	1/2"	10 3/4"
7/8" & 15/16"	XO2830	1 1/4" & 111/32"	17/32"	12 3/16"
15/16" & 1"	XO3032	1 11/32" & 17/16"	9/16"	13 1/16"

B XO605 Set. Includes XO1214, 1618, 1820, 2226 and 2428 in plastic tray.

XO612 Set. Wrenches XO810 thru XO3032.

XO612K Set. Wrenches XO810 thru XO3032 in C125 Kit Bag.

C STANDARD
6 POINT... FLANK DRIVE

Fed. Spec. GGG-W-636E		Head Diameters A	Head Depth B	Overall Length C
Wrench Sizes	Stock No.			
3/8" & 7/16"	XB1214S	9/16" & 41/64"	9/32"	7 19/32"
7/16" & 1/2"	XB1416S	41/64" & 47/64"	5/16"	8 3/16"
1/2" & 9/16"	XB1618S	47/64" & 13/16"	11/32"	8 25/32"
9/16" & 5/8"	XB1820S	13/16" & 29/32"	3/8"	9 23/64"

D STANDARD
12 POINT... FLANK DRIVE

Fed. Spec. GGG-W-636E		Head Diameters A	Head Depth B	Overall Length C
Wrench Sizes	Stock No.			
3/8" & 7/16"	XB1214	9/16" & 41/64"	9/32"	7 39/64"
7/16" & 1/2"	XB1416	41/64" & 47/64"	5/16"	8 3/16"
1/2" & 9/16"	XB1618	47/64" & 53/64"	11/32"	8 49/64"
9/16" & 5/8"	XB1820	53/64" & 29/32"	3/8"	9 3/8"
5/8" & 11/16"	XB2022	29/32" & 63/64"	13/32"	9 61/64"
5/8" & 3/4"	XB2024	29/32" & 15/64"	27/64"	10 1/4"
11/16" & 3/4"	XB2224	63/64" & 15/64"	7/16"	10 35/64"
3/4" & 13/16"	XB2426	15/64" & 111/64"	15/32"	11 1/8"
13/16" & 7/8"	XB2628	111/64" & 11/4"	1/2"	11 31/32"
7/8" & 15/16"	XB2830	1 1/4" & 111/32"	17/32"	12 51/64"
15/16" & 1"	XB3032	1 11/32" & 17/16"	9/16"	13 19/32"
1" & 1 1/16"	XB3234	1 7/16" & 1 17/32"	19/32"	14 23/64"
1 1/16" & 1 1/4"	XB3440	1 33/64" & 1 25/32"	21/32"	15 31/32"
1 1/8" & 1 3/16"	XB3638	1 39/64" & 1 45/64"	21/32"	15 31/32"
1 1/4" & 1 5/16"	XB4042	1 25/32" & 1 7/8"	23/32"	17 37/64"
1 3/8" & 1 7/16"	XB4446	1 31/32" & 2 3/64"	25/32"	19 3/16"
1 1/2" & 1 5/8"	XB4852	2 1/8" & 2 5/16"	55/64"	21 5/32"

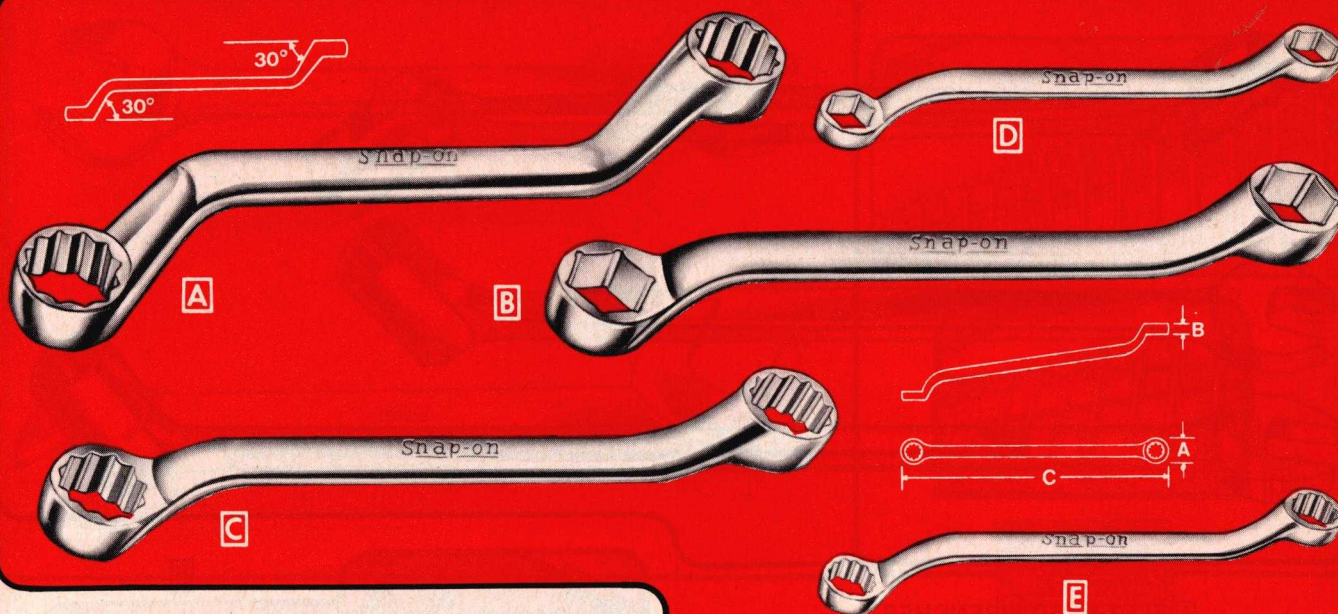
STANDARD 12 POINT SETS

Drop "K" from stock number if kit bag is not desired.

Wrench Sizes	Wrench Stock Number	12 Point Set Numbers			
		XB617K	XB611K E	XB608CK F	XB605
3/8" & 7/16"	XB1214	X	X	X	X
7/16" & 1/2"	XB1416	X	X	...	...
1/2" & 9/16"	XB1618	X	X	X	X
9/16" & 5/8"	XB1820	X	X	...	...
5/8" & 11/16"	XB2022	X	...	X	X
5/8" & 3/4"	XB2024	X	X	...	...
11/16" & 3/4"	XB2224	X	X	...	...
3/4" & 13/16"	XB2426	X	...	X	X
13/16" & 7/8"	XB2628	X	X	...	...
7/8" & 15/16"	XB2830	X	...	X	X
15/16" & 1"	XB3032	X	X	...	...
1" & 1 1/16"	XB3234	X	X	X	...
1 1/16" & 1 1/4"	XB3440	X	...	...	...
1 1/8" & 1 3/16"	XB3638	X	X	X	...
1 1/4" & 1 5/16"	XB4042	X	X	X	...
1 3/8" & 1 7/16"	XB4446	X	...	...	...
1 1/2" & 1 5/8"	XB4852	X	...	...	...
Kit Bag		C170	C113B	C83B	Tray

CHROME OFFSET "BOXOCKETS"

Wrenches



DWARF

A DEEP OFFSET...12 POINT...FLANK DRIVE

Fed. Spec. GGG-W-636E		Head Diameters A	Head Depths B	Overall Length C
Wrench Size	Stock No.			
1/4" & 9/32"	XSO89	25/64" & 7/16"	3/16" & 13/64"	37/8"
1/4" & 5/16"	†XSO810S	3/8" & 29/64"	3/16" & 7/32"	431/64"
1/4" & 5/16"	XSO810	3/8" & 29/64"	3/16" & 7/32"	45/32"
5/16" & 3/8"	XSO1012	29/64" & 17/32"	7/32" & 1/4"	431/64"
3/8" & 7/16"	XSO1214	17/32" & 5/8"	1/4" & 9/32"	453/64"
7/16" & 1/2"	XSO1416	5/8" & 45/64"	9/32" & 5/16"	55/32"
1/2" & 9/16"	XSO1618	45/64" & 51/64"	5/16" & 11/32"	51/2"
9/16" & 5/8"	XSO1820	51/64" & 7/8"	11/32" & 3/8"	527/32"
5/8" & 3/4"	XSO2024	7/8" & 13/64"	3/8" & 7/16"	629/64"
11/16" & 13/16"	XSO2226	31/32" & 11/8"	13/32" & 15/32"	75/64"

F XSO608K Set. XSO810 thru XSO2226 in C86B Kit Bag.

XSO608 Set. XSO810 thru XSO2226 without kit bag.

†6 Point.

B STANDARD...6 POINT...FLANK DRIVE

3/16" & 7/32"	*XS67S	19/64" & 11/32"	9/64" & 11/64"	37/8"
1/4" & 5/16"	XS810S	25/64" & 15/32"	13/64" & 1/4"	41/4"
5/16" & 3/8"	XS1012S	15/32" & 9/16"	1/4" & 19/64"	41/2"
3/8" & 7/16"	XS1214S	17/32" & 5/8"	19/64" & 21/64"	47/8"
7/16" & 1/2"	XS1416S	21/32" & 23/32"	21/64" & 11/32"	51/4"
1/2" & 9/16"	XS1618S	23/32" & 13/16"	11/32" & 23/64"	51/2"
9/16" & 5/8"	XS1820S	51/64" & 7/8"	23/64" & 29/64"	57/8"

*Standard broach.

G XS607SK Set. "BOXOCKETS" XS67S thru XS1820S in C74D Kit Bag.

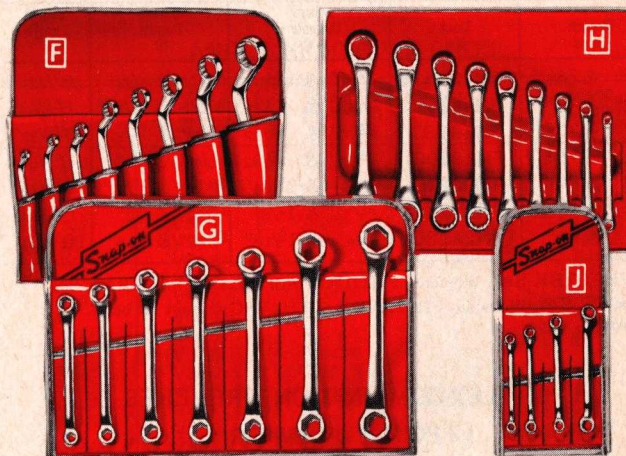
XS607S Set. "BOXOCKETS" XS67S thru XS1820S without kit bag.

C STANDARD...12 POINT...FLANK DRIVE

3/16" & 7/32"	*XS67	19/64" & 11/32"	9/64" & 11/64"	37/8"
1/4" & 5/16"	XS810	25/64" & 29/64"	13/64" & 1/4"	41/4"
5/16" & 3/8"	XS1012	29/64" & 9/16"	1/4" & 19/64"	41/2"
3/8" & 7/16"	XS1214	17/32" & 5/8"	19/64" & 21/64"	413/16"
7/16" & 1/2"	XS1416	21/32" & 23/32"	31/64" & 11/32"	51/4"
1/2" & 9/16"	XS1618	23/32" & 13/16"	11/32" & 23/64"	51/2"
9/16" & 5/8"	XS1820	51/64" & 7/8"	23/64" & 29/64"	513/16"
5/8" & 3/4"	XS2024	7/8" & 13/64"	3/8" & 7/16"	63/16"
11/16" & 13/16"	XS2226	63/64" & 19/64"	1/2" & 35/64"	61/2"

*Standard broach.

H XS609 Set. "BOXOCKETS" XS67 thru XS2226 in a plastic tray.



MIDGET

D STANDARD...6 POINT...FLANK DRIVE

Fed. Spec. GGG-W-636E		Head Diameters A	Head Depths B	Overall Length C
Wrench Size	Stock No.			
7/64" & 1/8"	*XI78	7/32" & 15/64"	5/64" & 3/32"	215/32"
5/32" & 3/16"	*XI1012	17/64" & 19/64"	7/64" & 1/8"	221/32"
7/32" & 15/64"	*XI1415	11/32" & 23/64"	9/64" & 5/32"	33/32"
1/4" & 9/32"	XI1618	3/8" & 27/64"	5/32" & 11/64"	33/8"
5/16" & 11/32"	XI2022	15/32" & 31/64"	11/64" & 3/16"	33/4"

*Standard broach.

XI605K Set. "BOXOCKETS" XI78 thru XI2022 in C52D Kit Bag.

XI605 Set. "BOXOCKETS" XI78 thru XI2022 without kit bag.

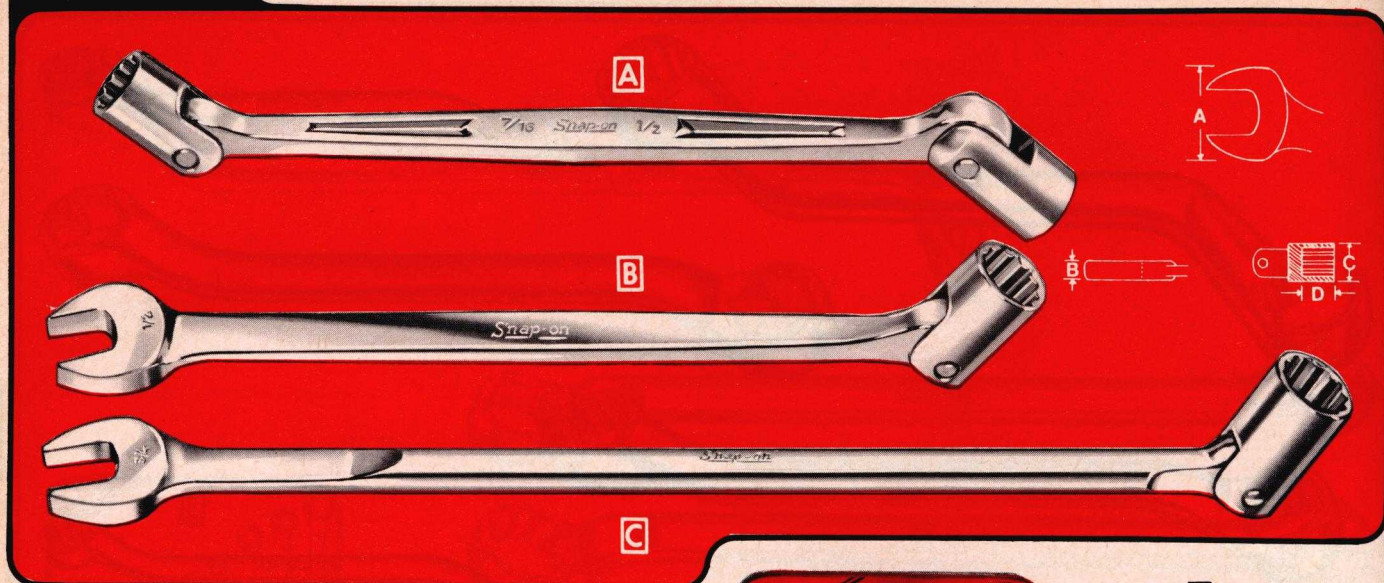
E STANDARD...12 POINT...FLANK DRIVE

Fed. Spec. GGG-W-636E		Head Diameters A	Head Depths B	Overall Length C
Wrench Size	Stock No.			
3/16" & 13/64"	*XID1213	19/64" & 21/64"	1/8" & 9/64"	213/16"
7/32" & 15/64"	*XID1415	11/32" & 23/64"	9/64" & 5/32"	33/32"
1/4" & 9/32"	XID1618	3/8" & 27/64"	5/32" & 11/64"	33/8"
5/16" & 11/32"	XID2022	15/32" & 31/64"	11/64" & 3/16"	33/4"

*Standard broach.

J XID604K Set. "BOXOCKETS" XID1213 thru XID2022 in C41D Kit Bag.

XID604 Set. XID1213 thru XID2022 without kit bag.



A FLEX-HEAD WRENCHES
12 POINT...FLANK DRIVE

Wrench Sizes	Stock No.	Head Diameters C	Broach Depths D	Overall Length E
3/8" & 7/16"	†FH1214CS	9/16" & 5/8"	1/4" & 9/32"	67/32"
7/16" & 1/2"	FH1416C	5/8" & 23/32"	9/32" & 11/32"	659/64"
1/2" & 9/16"	FH1618C	23/32" & 25/32"	11/32" & 11/32"	719/32"
9/16" & 5/8"	FH1820C	25/32" & 29/32"	11/32" & 3/8"	841/64"
5/8" & 3/4"	FH2024C	29/32" & 13/64"	3/8" & 15/32"	923/32"
11/16" & 13/16"	FH2226C	31/32" & 11/8"	13/32" & 1/2"	1035/64"
3/4" & 7/8"	FH2428C	13/64" & 13/16"	15/32" & 9/16"	1039/64"

† FH607BK Set. Wrenches FH1214CS thru FH2428C in C75B Kit Bag.
FH607B Set. Wrenches FH1214CS thru FH2428C without kit bag.
†6 point

B FLEX-COMBINATION WRENCHES
12 POINT... FLANK DRIVE

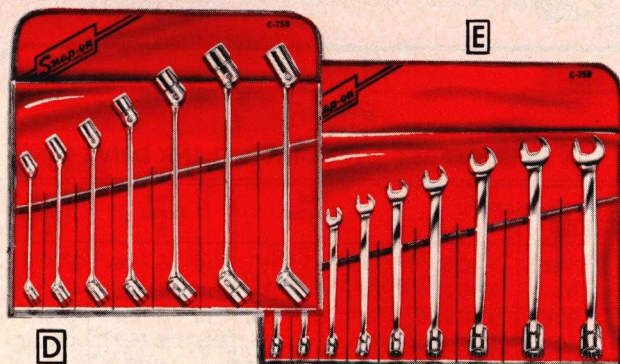
Wrench Size	Stock Number	OPEN END		BOX END		Overall Length E
		Head Width A	Head Depth B	Head Width C	Broach Depth D	
3/8"	†FHO12S	25/32"	13/64"	9/16"	1/4"	61/2"
7/16"	†FHO14S	29/32"	15/64"	5/8"	9/32"	7 1/8"
1/2"	FHO16	1 1/16"	1/4"	23/32"	11/32"	7 13/16"
9/16"	FHO18	1 3/16"	17/64"	25/32"	11/32"	8 3/8"
5/8"	FHO20	1 5/16"	9/32"	57/64"	3/8"	9"
11/16"	FHO22	1 7/16"	19/64"	1"	13/32"	9 11/16"
3/4"	FHO24	1 1/2"	5/8"	1 3/64"	15/32"	10 1/4"
13/16"	FHO26	1 23/32"	5/16"	1 7/64"	1/2"	10 5/16"
7/8"	FHO28	1 27/32"	5/16"	1 3/16"	9/16"	11 15/32"

FHO607K Set. Wrenches FHO12S thru FHO24 in C75B Kit Bag.
FHO607 Set. Wrenches FHO12S thru FHO24 without kit bag.
† FHO609K Set. Includes Wrenches FHO12S thru FHO28 in C97 Kit Bag.
FHO609 Set. Wrenches FHO12S thru FHO28 without kit bag.
†6 point

HALF MOON "BOXOCKETS"
12 POINT... FLANK DRIVE

▲ Fed. Spec. GGG-W-636E

The handle design of Snap-on Half Moon "BOXOCKETS" allows the wrench to be used to remove starter and manifold bolts.



C LONG FLEX-COMBINATION WRENCHES
12 POINT...FLANK DRIVE

Wrench Size	Stock No.	OPEN END		BOX END		Overall Length E
		Head Width A	Head Depth B	Head Width C	Broach Depth D	
11/16"	OH22	17/16"	19/64"	31/32"	13/32"	14 1/2"
3/4"	OH24	19/16"	5/16"	13/64"	15/32"	16 1/32"
13/16"	OH26	1 11/16"	3/8"	1 1/8"	1/2"	16 5/16"
7/8"	OH28	1 13/16"	3/8"	1 3/16"	9/16"	17 1/8"
15/16"	OH30	1 15/16"	3/8"	1 17/64"	19/32"	19 1/4"

OH605 Set. Wrenches OH22 thru OH30 above.

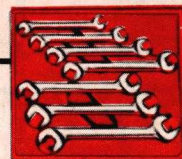
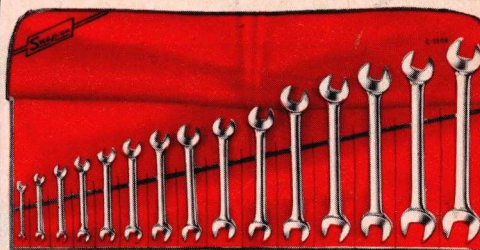


Wrench Sizes	Stock No.	Head Diameters	Head Depths	Handle Radius	Overall Length
7/16" & 1/2"	▲CX1416	5/8" & 23/32"	5/16" & 5/16"	2 15/64"	5"
9/16" & 5/8"	▲CX1820	5 1/64" & 7/8"	1 1/32" & 3/8"	2 9/16"	6 1/2"
5/8" & 3/4"	▲CX2024	7/8" & 1 13/64"	1 3/32" & 7/16"	3 1/16"	7 3/4"
11/16" & 13/16"	CX2226	31/32" & 1 19/64"	1 3/32" & 15/32"	3 1/2"	8 1/2"
7/8" & 15/16"	CX2830	1 1/4" & 1 21/64"	9/16" & 9/16"	4 1/16"	10"

CX605 Set. Half Moon "BOXOCKETS" CX1416 thru CX2830.

CHROME OPEN END

Wrenches



C

D

E

The ends on the Angle-Head Wrenches have been set at 30° and 60° angles to the handle. Both ends on each Angle-Head Wrench are the same size to permit the use of one wrench, applied in different ways, to gain additional movement.

To provide an increased turning arc in tight places the ends on the Standard Open End Wrenches have been set at a 15° angle.

Federal Specification GGG-W-636E applies to all Standard Open End and VS12 through VS24 Angle-Head Open End Wrenches.

A STANDARD OPEN ENDS

Wrench Sizes	Stock No.	Head Depth A	Head Widths B	Overall Length C
1/4" & 5/16"	VO810	5/32"	17/32" & 21/32"	4"
5/16" & 3/8"	VO1012	3/16"	21/32" & 25/32"	4 5/8"
3/8" & 7/16"	VO1214	13/64"	25/32" & 29/32"	5 1/4"
7/16" & 1/2"	VO1416	7/32"	29/32" & 1 1/16"	5 7/8"
1/2" & 9/16"	VO1618	15/64"	1 1/16" & 1 3/16"	6 1/2"
9/16" & 5/8"	VO1820	1/4"	1 3/16" & 1 5/16"	7 1/16"
5/8" & 11/16"	VO2022	17/64"	1 5/16" & 1 7/16"	7 11/16"
5/8" & 3/4"	VO2024	9/32"	1 5/16" & 1 9/32"	8 1/16"
11/16" & 3/4"	VO2224	9/32"	1 7/16" & 1 9/32"	8 7/16"
3/4" & 13/16"	VO2426	19/64"	1 9/32" & 1 23/32"	9 1/4"
13/16" & 7/8"	VO2628	5/16"	1 23/32" & 1 27/32"	10"
7/8" & 15/16"	VO2830	11/32"	1 27/32" & 1 31/32"	10 13/16"
15/16" & 1"	VO3032	3/8"	1 31/32" & 2 3/32"	11 9/16"
1" & 1 1/16"	VO3234	25/64"	2 3/32" & 2 7/32"	12 3/8"
1 1/16" & 1 1/4"	VO3440	7/16"	2 15/64" & 2 19/32"	13 57/64"
1 1/8" & 1 3/16"	VO3638	7/16"	2 11/32" & 2 15/32"	13 7/8"
1 1/4" & 1 5/16"	VO4042	3/4"	2 19/32" & 2 3/4"	15 1/2"
1 3/8" & 1 7/16"	VO4446	17/32"	2 7/8" & 3"	17 1/16"
1 1/2" & 1 5/8"	VO4852	19/32"	3 1/8" & 3 3/8"	19"

VO806 Set. Wrenches VO810, 1214, 1618, 2022, 2426 and 2830 in a plastic tray.

VO819K Set. Wrenches VO810 thru VO4852 in C200 kit bag.

VO819 Set. Wrenches VO810 thru VO4852 without kit bag.

STANDARD OPEN END SETS

Drop "K" from stock number if kit bag is not desired.

Wrench Sizes	Wrench Stock Nos.	VO 815K	VO 812K	VO 809K	Wrench Sizes	Wrench Stock Nos.	VO 815K	VO 812K	VO 809K
1/4" & 5/16"	VO810	X	X	X	3/4" & 1 3/16"	VO2426	X	X	X
5/16" & 3/8"	VO1012	X	X	X	13/16" & 7/8"	VO2628	X	X	X
3/8" & 7/16"	VO1214	X	X	X	7/8" & 1 5/16"	VO2830	X	X	X
7/16" & 1/2"	VO1416	X	X	X	1 5/16" & 1"	VO3032	X	X	X
1/2" & 9/16"	VO1618	X	X	X	1" & 1 1/16"	VO3234	X	X	X
9/16" & 5/8"	VO1820	X	X	X	1 1/16" & 1 1/4"	VO3440	X	X	X
5/8" & 11/16"	VO2022	X	X	X	1 1/8" & 1 3/16"	VO3638	X	X	X
5/8" & 3/4"	VO2024	X	X	X	1 1/2" & 1 5/16"	VO4042	X	X	X
11/16" & 3/4"	VO2224	X	X	X	1 3/8" & 1 7/16"	VO4446	X	X	X
					1 1/2" & 1 5/8"	VO4852	X	X	X
	Kit Bag	C150B	C124	C98		Kit Bag	C150B	C124	C98

B ANGLE-HEAD OPEN ENDS

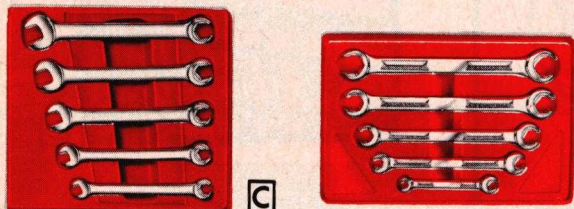
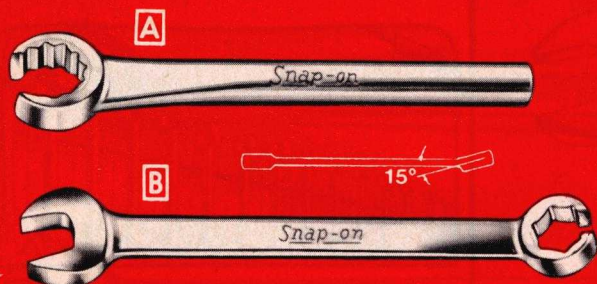
Wrench Size	Stock No.	Head Depth A	Head Width B	Overall Length C
1/4"	VS8	11/64"	15/32"	3 3/4"
5/16"	VS10	13/64"	19/32"	4 1/4"
3/8"	VS12	7/32"	23/32"	5"
7/16"	VS14	7/32"	27/32"	5 1/2"
1/2"	VS16	15/64"	31/32"	6"
9/16"	VS18	9/16"	1 3/32"	6 1/2"
5/8"	VS20	17/64"	1 7/32"	7"
11/16"	VS22	9/32"	1 11/32"	7 1/2"
3/4"	VS24	19/64"	1 15/32"	8"
13/16"	VS26	5/16"	1 19/32"	8 1/2"
7/8"	VS28	21/64"	1 23/32"	9 1/4"
15/16"	VS30	11/32"	1 27/32"	9 3/4"
1"	VS32	23/64"	1 31/32"	10 1/4"
1 1/16"	VS34	3/8"	2 3/32"	11"
1 1/8"	VS36	3/8"	2 7/32"	11 1/2"
1 3/16"	VS38	25/64"	2 11/32"	12"
1 1/4"	VS40	13/32"	2 15/32"	12 3/4"
1 5/16"	VS42	27/64"	2 19/32"	13 1/4"
1 3/8"	VS44	7/16"	2 23/32"	13 3/4"
1 7/16"	VS46	29/64"	2 27/32"	14 1/2"
1 1/2"	VS48	15/32"	2 31/32"	15"
1 5/8"	VS52	31/64"	3 7/32"	16"
1 11/16"	VS54	1/2"	3 11/32"	16 3/4"
1 3/4"	VS56	33/64"	3 15/32"	17 1/4"
1 13/16"	VS58	17/32"	3 19/32"	17 3/4"
1 7/8"	VS60	35/64"	3 23/32"	18 1/4"
2"	VS64	37/64"	3 31/32"	19 1/2"

E VS807A Set. Wrenches VS12 thru VS24 in a plastic tray.

ANGLE-HEAD OPEN END SETS

Drop "K" from stock number if kit bag is not desired.

Wrench Sizes	Wrench Stock No.	VS 827A	VS 814A	VS 809AK	Wrench Sizes	Wrench Stock No.	VS 827A	VS 814A	VS 809AK
1/4"	VS8	X	...	...	1 1/8"	VS36	X	X	...
5/16"	VS10	X	...	...	13/16"	VS38	X	...	...
3/8"	VS12	X	X	X	1 1/4"	VS40	X	X	...
7/16"	VS14	X	X	X	1 5/16"	VS42	X	...	...
1/2"	VS16	X	X	X	1 3/8"	VS44	X	...	...
9/16"	VS18	X	X	X	1 7/16"	VS46	X	...	...
5/8"	VS20	X	X	X	1 1/2"	VS48	X	...	...
11/16"	VS22	X	X	X	1 5/8"	VS52	X	...	...
3/4"	VS24	X	X	X	1 11/16"	VS54	X	...	...
13/16"	VS26	X	X	X	1 3/4"	VS56	X	...	...
7/8"	VS28	X	X	X	1 13/16"	VS58	X	...	...
15/16"	VS30	X	X	...	1 7/8"	VS60	X	...	...
1"	VS32	X	X	...	2"	VS64	X	...	...
1 1/16"	VS34	X	X	...					
	Kit Bag	None	None	C92C		Kit Bag	None	None	C92C



CAUTION: Excessive torque could result in jaw slippage and/or spreading.

A SINGLE END FLARE NUT 12 POINT...FLANK DRIVE

Wrench Size	Stock No.	Head Diameter A	Head Depth B	Overall Length C
9/16"	RX18	1"	13/32"	6 1/2"
5/8"	RX20	1 5/64"	7/16"	6 3/4"
11/16"	RX22	1 11/64"	15/32"	7 1/16"
3/4"	RX24	1 1/4"	17/32"	7 3/8"
13/16"	RX26	1 11/32"	17/32"	7 5/32"
7/8"	RX28	1 27/64"	19/32"	7 23/32"
15/16"	RX30	1 1/2"	19/32"	7 3/4"
1"	RX32	1 19/32"	21/32"	7 25/32"
1 1/16"	RX34	1 43/64"	23/32"	7 27/32"
1 1/8"	RX36	1 49/64"	3/4"	7 7/8"
1 3/16"	RX38	1 27/32"	25/32"	8"
1 1/4"	RX40	1 15/16"	27/32"	7 31/32"
1 5/16"	RX42	2"	7/8"	13"
1 3/8"	RX44	2 3/32"	7/8"	13 1/16"
1 1/2"	RX48	2 17/64"	31/32"	13 1/8"
1 5/8"	RX52	2 27/64"	1"	13 7/32"

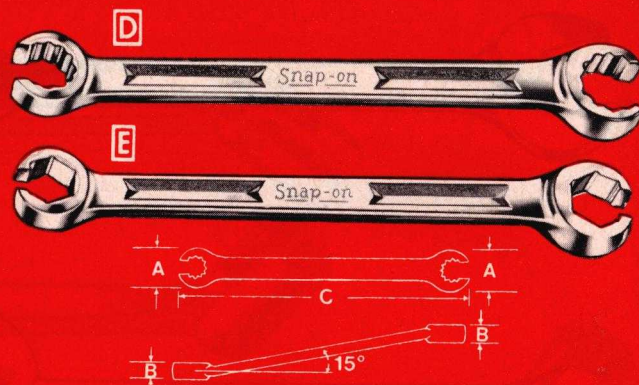
RX616 Set. Wrenches RX18 thru RX52.

B COMBINATION OPEN END & FLARE NUT 6 POINT...FLANK DRIVE

Combination Open End & Flare Nut: Same size wrench at each end. Openings set at 15° angle. Flare Nut head offset at 15°

Wrench Size	Stock No.	Head Diameter		Head Depth		Overall Length
		Box End	Open End	Box End	Open End	
5/16"	RXS10	45/64"	21/32"	5/16"	5/16"	5 3/16"
3/8"	RXS12	51/64"	13/16"	11/32"	11/32"	5 7/8"
7/16"	RXS14	57/64"	15/16"	3/8"	3/8"	6 3/8"
1/2"	RXS16	63/64"	1 3/32"	25/64"	3/8"	6 15/16"
9/16"	RXS18	1 1/16"	17/32"	7/16"	7/16"	7 3/8"
5/8"	RXS20	1 7/64"	1 11/32"	7/16"	7/16"	7 7/8"
11/16"	RXS22	1 7/64"	1 7/16"	15/32"	15/32"	8 3/8"
3/4"	RXS24	1 15/64"	1 9/16"	1/2"	1/2"	9 1/8"

Q RXS605 Set. RXS12 thru RXS20 in plastic tray.
RXS605K Set. RXS12 thru RXS20 in C50B Kit Bag.
RXS608K Set. RXS10 thru RXS24 in C811 Kit Bag.
RXS608 Set. RXS10 thru RXS24 without kit bag.



Double End Flare Nut. Different wrench size at each end. Heads are offset at 15° Fed. Spec. GGG-W-636E applies.

D DOUBLE END FLARE NUT 12 POINT...FLANK DRIVE

Wrench Sizes	Stock No.	Head Diameters A	Head Depths B	Overall Length C
3/8" & 7/16"	RXH1214	51/64" & 7/8"	11/32" & 3/8"	6 1/4"
1/2" & 9/16"	RXH1618	31/32" & 1 1/16"	3/8" & 7/16"	7 1/2"
5/8" & 1 1/16"	RXH2022	1 7/64" & 1 15/64"	7/16" & 1/2"	8 1/2"

E DOUBLE END FLARE NUT 6 POINT...FLANK DRIVE

Wrench Sizes	Stock No.	Head Diameters A	Head Depths B	Overall Length C
1/4" & 5/16"	RXH810S	39/64" & 45/64"	7/32" & 9/32"	4"
5/16" & 3/8"	RXH1012S	25/32" & 45/64"	9/32" & 11/32"	5 11/16"
3/8" & 7/16"	RXH1214S	51/64" & 7/8"	11/32" & 3/8"	6 1/4"
7/16" & 1/2"	RXH1416S	7/8" & 31/32"	3/8" & 3/8"	6 15/16"
1/2" & 9/16"	RXH1618S	31/32" & 1 1/16"	3/8" & 7/16"	7 1/2"
5/8" & 1 1/16"	RXH2022S	1 7/64" & 1 15/64"	7/16" & 1/2"	7 21/32"
5/8" & 3/4"	RXH2024S	1 7/64" & 1 15/64"	7/16" & 1/2"	8 1/2"
3/4" & 13/16"	RXH2426S	1 15/64" & 1 11/32"	1/2" & 17/32"	8 7/8"
3/4" & 1"	RXH2432S	1 15/64" & 1 37/64"	1/2" & 5/8"	9 1/4"
7/8" & 1 1/8"	RXH2836S	1 13/32" & 1 49/64"	9/16" & 11/16"	9 7/8"

F RXH605S Set. RXH810S, 1214S, 1618S, 2022S and 2426S in a plastic tray.
RXH610SK Set. RXH810S thru RXH2836S in C108 Kit Bag.
RXH610S Set. RXH810S thru RXH2836S without kit bag.



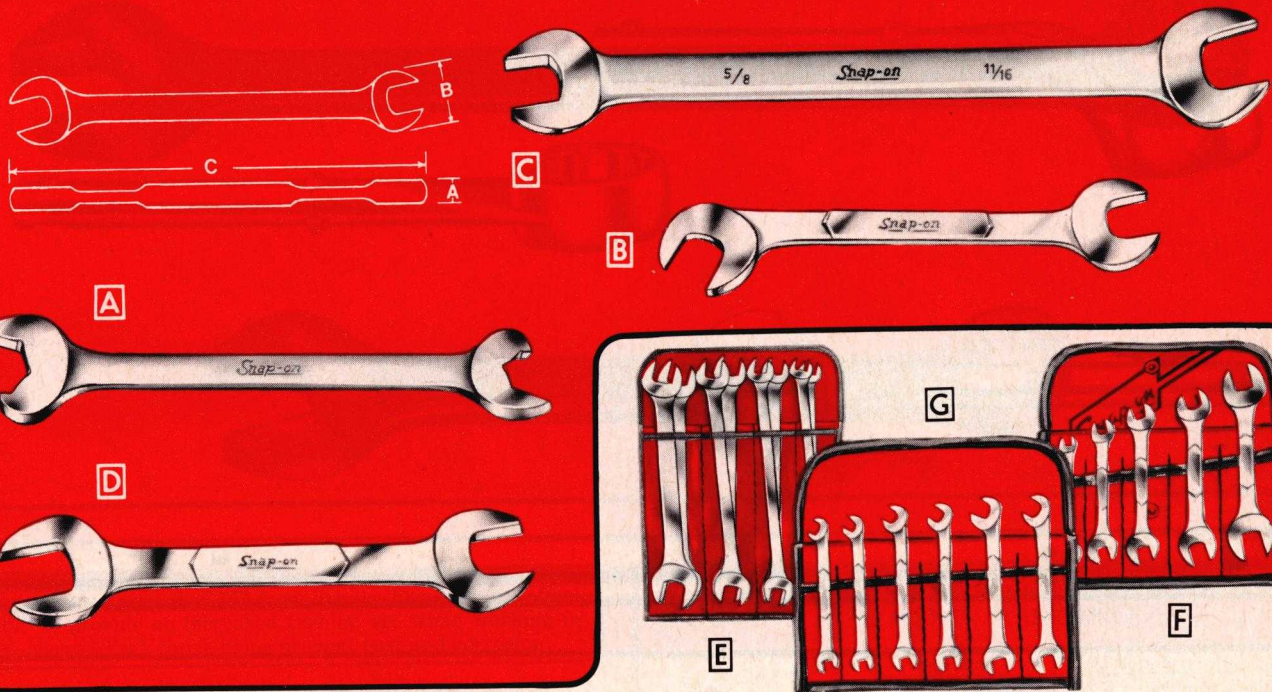
CROWFOOT FLARE NUT WRENCHES

G 6 POINT...FLANK DRIVE

3/8" Drive..... Page 59
 3/8" Drive (Metric)..... Page 117

H 12 POINT...FLANK DRIVE

1/4" Drive..... Page 47
 3/8" Drive..... Page 59
 1/2" Drive..... Page 70



A RATCHETING OPEN ENDS

Turn without removing wrench. Ratchet-like action provides for speed and easy access in limited clearance operations. Heads are set at 15° angles. Chrome and black finishes are available.

CHROME

Wrench Sizes	Stock No.	Head Thickness	Overall Length
3/8" & 7/16"	RS1214A	5/32"	5"
7/16" & 1/2"	†RS1416B	3/16"	5 1/2"
1/2" & 9/16"	†RS1618B	7/32"	6"
9/16" & 5/8"	†RS1820B	1/4"	6 1/2"

RS804B Set. RS1214A thru RS1820B.

BLACK

Wrench Sizes	Stock No.	Head Thickness	Overall Length
3/8" & 7/16"	†GRVS1214	3/8"	6"

†Flank Drive.

B IGNITION OPEN ENDS

Three smallest wrenches have same size on each end. Heads on remaining wrenches are set at 15° at one end and 60° on the other end. Fed. Spec. GGG-W-636E applies.

Wrench Sizes		Stock No.	Head Depth A	Head Width B	Overall Length C
15° End	60° End				
1/8"	1/8"	DS88	3/32"	9/32"	2 3/4"
5/32"	5/32"	DS1010	3/32"	3/8"	2 7/8"
3/16"	3/16"	DS1212	3/32"	13/32"	2 7/8"
15/64"	1/4"	DS1516	7/64"	15/32"	3 1/4"
1/4"	15/64"	DS1615	7/64"	15/32"	3 1/4"
9/32"	5/16"	DS1820	1/8"	19/32"	3 1/2"
5/16"	9/32"	DS2018	1/8"	19/32"	3 1/2"
11/32"	3/8"	DS2224	9/64"	1 1/16"	3 3/4"
3/8"	11/32"	DS2422	9/64"	1 1/16"	3 3/4"

DS809 Set. DS88 thru DS2422 in C90 Kit Bag.

DS809 Set. DS88 thru DS2422 without kit bag.

DS806K Set. DS1516 thru DS2422 in C65D Kit Bag.

DS806 Set. DS1516 thru DS2422 without kit bag.

C TAPPET OPEN ENDS

CAUTION: Use only for adjusting tappets. The extreme thinness of heads when used on other applications could lead to failure and injury.

Heads are set at 15° angles for better tool application.

Wrench Sizes	Stock No.	Head Depth A	Head Widths B	Overall Length C
7/16" & 1/2"	LTA1416	11/64"	29/32" & 1 1/32"	9 1/2"
1/2" & 9/16"	LTA1618	3/16"	1 1/32" & 1 5/32"	9 1/2"
5/8" & 1 1/16"	LTA2022	3/16"	1 9/32" & 1 13/32"	9 1/2"
3/4" & 7/8"	LTA2428	13/64"	1 17/32" & 1 25/32"	9 1/2"

E LTA808K Set. Contains two each of LTA1416 thru LTA2428 wrenches in C48D Kit Bag.

LTA808 Set. Contains two each of LTA1416 thru LTA2428 wrenches without kit bag.

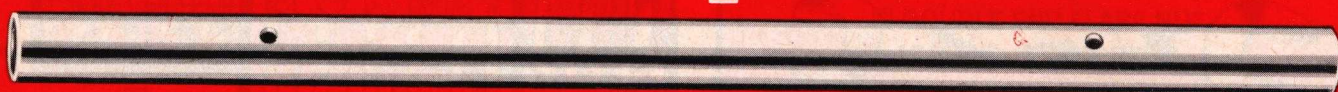
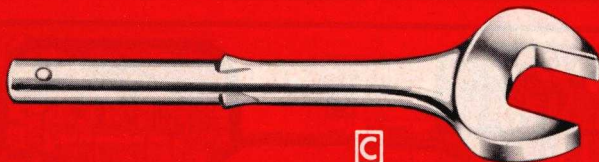
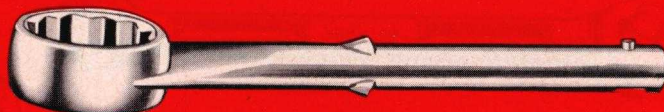
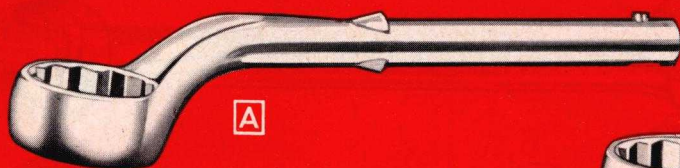
D SHORT OPEN ENDS

Two sizes on each wrench with heads set at 15° angles.

Wrench Sizes	Stock No.	Head Depth A	Head Widths B	Overall Length C
3/16" & 7/32"	J1214	3/32"	3/8" & 7/16"	2 3/4"
1/4" & 9/32"	J1618	7/64"	1/2" & 9/16"	3 1/8"
5/16" & 1 1/32"	J2022	1/8"	5/8" & 1 1/16"	3 1/2"
3/8" & 7/16"	J2428	9/64"	3/4" & 13/16"	3 7/8"
1/2" & 9/16"	J3236	5/32"	15/16" & 1"	4 1/4"

F J805AK Set. J1214 thru J3236 in C52D Kit Bag.

J805A Set. J1214 thru J3236 without kit bag.



Wrenches may be used without the handle to quickly run down nuts. The handle can then be slipped on for final tightening or to reach otherwise inaccessible nuts. A "stop" on the wrench shaft helps to align locking button with handle hole.

A & B OFFSET AND STRAIGHT "BOXOCKETS" 12 POINT...FLANK DRIVE

Wrench Size	OFFSET TYPE		STRAIGHT TYPE		Head Diameter A	Head Depth B	Assem. Length from Bolt Center	For Handle No.
	A Stock No.	Height of Offset	B Stock No.					
3/4"	—	—	XH124A	1 3/8"	17/32"	18 1/4"	15A	
13/16"	—	—	XH126A	1 3/8"	17/32"	18 1/4"	15A	
7/8"	—	—	XH128A	1 3/8"	17/32"	18 1/4"	15A	
15/16"	—	—	XH130A	1 1/2"	9/16"	18 3/4"	15A	
1"	—	—	XH132A	1 19/32"	9/16"	18 3/4"	15A	
1 1/16"	X340A	15/16"	XH134A	1 43/64"	5/8"	21 3/4"	18A	
1 1/8"	X360A	1"	XH136A	1 3/4"	3/4"	21 3/4"	18A	
1 1/4"	X400B	1 1/16"	XH140A	1 59/64"	3/4"	21 3/4"	18A	
1 5/16"	X420A	1 1/8"	XH142A	1 1/32"	7/8"	29 1/2"	24A	
1 3/8"	X440A	1 3/16"	—	2 5/64"	7/8"	29 1/2"	24A	
1 7/16"	X460A	1 1/4"	XH146A	2 7/32"	15/16"	29 1/2"	24A	
1 1/2"	X480A	1 5/16"	XH148A	2 1/4"	15/16"	29 1/2"	24A	
1 9/16"	X500A	1 5/16"	—	2 11/32"	15/16"	29 1/2"	24A	
1 5/8"	X520A	1 3/8"	XH152A	2 7/16"	1"	29 1/2"	24A	
1 11/16"	X540A	1 7/16"	XH154A	2 1/2"	1 1/16"	35 3/4"	30A	
1 3/4"	X560A	1 1/2"	XH156A	2 9/16"	1 1/16"	35 3/4"	30A	
1 13/16"	X580A	1 9/16"	XH158A	2 11/16"	1 1/8"	35 3/4"	30A	
1 7/8"	X600A	1 5/8"	XH160A	2 3/4"	1 1/8"	35 3/4"	30A	
2"	X640A	1 3/4"	XH164A	2 15/16"	1 1/4"	35 3/4"	30A	
2 1/16"	X660A	1 3/4"	XH166A	2 15/16"	1 1/4"	35 3/4"	30A	
2 3/16"	X700A	1 7/8"	XH170A	3 5/32"	1 5/16"	35 3/4"	30A	
2 1/4"	X720A	1 7/8"	XH172A	3 1/4"	1 5/16"	42"	30A	
2 3/8"	X760A	2"	XH176A	3 13/32"	1 13/32"	42"	36A	
2 9/16"	X820A	2 1/4"	XH182A	3 21/32"	1 1/2"	42"	36A	
2 5/8"	X840A	2 1/4"	XH184A	3 3/4"	1 1/2"	42"	36A	
2 3/4"	X880A	2 1/2"	XH188A	3 15/16"	1 5/8"	42"	36A	
2 15/16"	X940A	2 5/8"	—	4 3/16"	1 11/16"	42"	36A	
3 1/8"	X1000A	2 3/4"	XH1100A	4 13/32"	1 3/4"	42"	36A	

*Standard broach.

"BOXOCKET" SETS

X628H Set. All Offset "BOXOCKETS" X340A thru X1000A at left plus all tubular handles listed below.

XH630H Set. All Straight "BOXOCKETS" XH124A thru XH1100A at left plus all tubular handles listed below.

XH615H Set. Includes twelve Straight "BOXOCKETS," HX124A through XH152A plus three tubular handles, Nos. 15A, 18A and 24A.

XX611H Set. Includes nine Offset "BOXOCKETS," X340A through X520A plus two tubular handles, Nos. 18A and 24A.

C OPEN END

Open End Wrenches have a continuous arc design that distributes stress over the entire radius for greater strength.

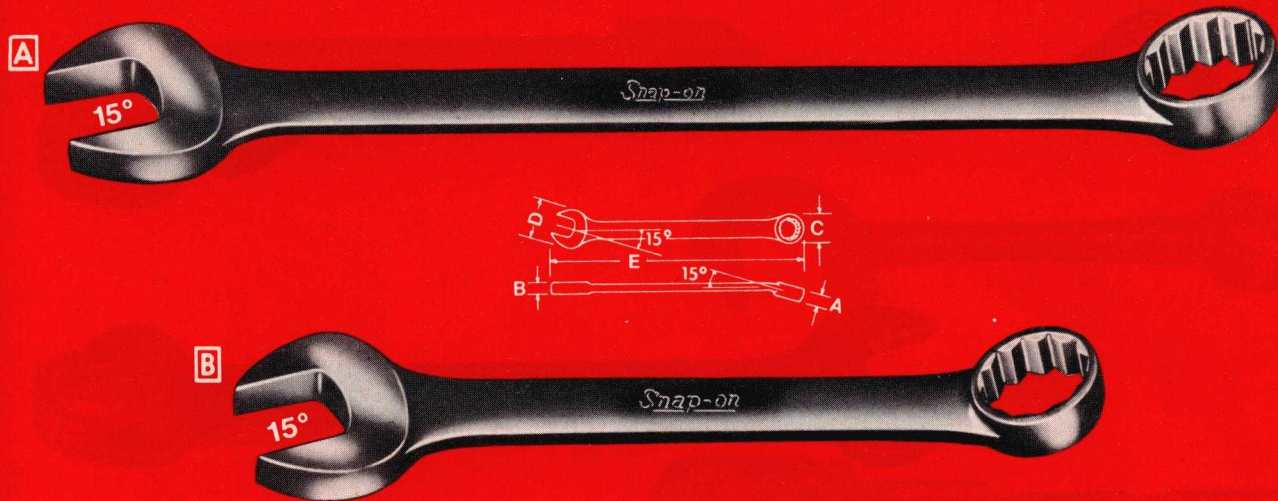
Wrench Size	Stock No.	Head Diameter A	Head Depth B	Length With Handle	Fits Handle
7/8"	OE128A	1 15/16"	1/2"	21 7/8"	15A
15/16"	OE130A	1 15/16"	1/2"	21 7/8"	15A
1"	OE132A	2 5/16"	9/16"	25 1/16"	18A
1 1/16"	OE134A	2 5/16"	9/16"	25 1/16"	18A
1 1/8"	OE136A	2 5/16"	9/16"	25 1/16"	18A
1 1/4"	OE140A	2 11/16"	5/8"	26 3/8"	18A
1 5/16"	OE142A	2 11/16"	5/8"	26 3/8"	18A
1 7/16"	OE146A	3 1/8"	1 1/16"	31 5/8"	24A
1 1/2"	OE148A	3 1/8"	1 1/16"	31 5/8"	24A

OE1812A Set. Open End Wrenches OE128A thru OE148A above plus three Tubular Handles, Nos. 15A, 18A and 24A listed below.

D TUBULAR HANDLES

Designed for use with the "BOXOCKET" and Open End Wrenches on this page, these Tubular Handles are made of seamless steel tubing.

Stock No.	Overall Length	Outside Diameter	Inside Diameter	Stock No.	Overall Length	Outside Diameter	Inside Diameter
15A	15"	13/16"	5/8"	30A	30"	1 5/16"	1"
18A	18"	7/8"	11/16"	36A	36"	1 7/16"	1 1/8"
24A	24"	1 1/16"	7/8"				



Open ends are angled at 15° from handle. Box ends are offset at 15° to provide an increased turning arc when working in tight places. Black finish helps prevent rust and corrosion.

A EXTRA LONG HANDLE COMBINATIONS

12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Head Depths		Head Diameters		Overall Length E
		Box End A	Open End B	Box End C	Open End D	
1/2"	GOEXL16	11/32"	1/4"	3/4"	1 1/16"	9"
9/16"	GOEXL18	3/8"	17/64"	53/64"	13/16"	10"
5/8"	GOEXL20	13/32"	9/32"	59/64"	15/16"	11"
11/16"	GOEXL22	7/16"	19/64"	1 1/64"	17/16"	12"
3/4"	GOEXL24	7/16"	5/16"	1 7/64"	1 19/32"	13"

GOEXL705 Set. Wrenches GOEXL16 thru GOEXL24.

B SHORT HANDLE COMBINATIONS

12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Head Depths		Head Diameters		Overall Length E
		Box End A	Open End B	Box End C	Open End D	
5/16"	GOEX100	7/32"	11/64"	15/32"	21/32"	5"
3/8"	GOEX120	17/64"	13/64"	17/32"	25/32"	5 7/32"
7/16"	GOEX140	19/64"	15/64"	21/32"	29/32"	5 7/16"
1/2"	GOEX160	5/16"	1/4"	23/32"	1 1/16"	5 23/32"
9/16"	GOEX180	21/64"	17/64"	13/16"	1 3/16"	6"
5/8"	GOEX200	11/32"	9/32"	7/8"	15/16"	6 5/16"
11/16"	GOEX220	23/64"	19/64"	31/32"	1 7/16"	6 19/32"
3/4"	GOEX240	3/8"	5/16"	1 1/16"	1 1/2"	6 7/8"

GOEXS708 Set. Wrenches GOEX100 thru GOEX240.

GOEXS708K Set. Wrenches GOEX100 thru GOEX240 in C80D Kit Bag.

A LONG HANDLE COMBINATIONS

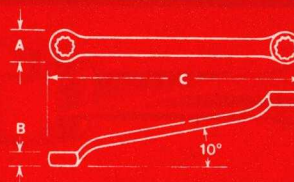
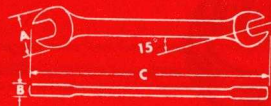
12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Head Depths		Head Diameters		Overall Length E
		Box End A	Open End B	Box End C	Open End D	
3/8"	GOEX12	5/16"	15/64"	19/32"	25/32"	6 9/16"
7/16"	GOEX14	5/16"	15/64"	21/32"	29/32"	7 3/32"
1/2"	GOEX16	5/16"	1/4"	3/4"	1 1/16"	7 21/32"
9/16"	GOEX18	11/32"	17/64"	27/32"	13/16"	7 3/4"
5/8"	GOEX20	13/32"	9/32"	15/16"	15/16"	8 1/4"
11/16"	GOEX22	7/16"	19/64"	1"	17/16"	9 1/4"
3/4"	GOEX24	7/16"	5/16"	13/32"	19/16"	9 3/4"
13/16"	GOEX26	1/2"	3/8"	13/16"	1 11/16"	11"
7/8"	GOEX28	17/32"	3/8"	19/32"	1 13/16"	11 7/8"
15/16"	GOEX30	9/16"	3/8"	1 11/32"	1 15/16"	13"
1"	GOEX32	5/8"	7/16"	17/16"	2 1/16"	14"
1 1/16"	GOEX34	1 1/16"	15/32"	1 9/16"	2 3/16"	15"
1 1/8"	GOEX36	3/4"	1/2"	1 21/32"	2 5/16"	15 7/8"
1 1/4"	GOEX40	3/4"	1/2"	1 27/32"	2 9/16"	17"
1 5/16"	GOEX42	3/4"	1/2"	1 29/32"	2 11/16"	18"
1 3/8"	GOEX44	3/4"	1/2"	2"	2 13/16"	19"
1 7/16"	GOEX46	7/8"	9/16"	2 1/16"	2 15/16"	20 1/16"
1 1/2"	GOEX48	7/8"	5/8"	2 5/32"	3 1/16"	21 1/16"
1 9/16"	GOEX50	7/8"	5/8"	2 7/32"	3 1/4"	21 5/8"
1 5/8"	GOEX52	7/8"	5/8"	2 5/16"	3 5/16"	22 1/8"

LONG HANDLE SETS

Drop "K" from set number below if kit bag is not desired.

Wrench Size	Wrench Stock Number	SET NUMBERS INCLUDE KIT BAG			
		GOEX720K Set	GOEX714K Set	GOEX711K Set	GOEX709K Set
3/8"	GOEX12	X	X	X	X
7/16"	GOEX14	X	X	X	X
1/2"	GOEX16	X	X	X	X
9/16"	GOEX18	X	X	X	X
5/8"	GOEX20	X	X	X	X
11/16"	GOEX22	X	X	X	X
3/4"	GOEX24	X	X	X	X
13/16"	GOEX26	X	X	X	X
7/8"	GOEX28	X	X	X	X
15/16"	GOEX30	X	X	X	...
1"	GOEX32	X	X	X	...
1 1/16"	GOEX34	X	X	...	...
1 1/8"	GOEX36	X	X	...	...
1 1/4"	GOEX40	X	X	...	...
1 5/16"	GOEX42	X	...	...	...
1 3/8"	GOEX44	X	...	...	...
1 7/16"	GOEX46	X	...	...	...
1 1/2"	GOEX48	X	...	...	...
1 9/16"	GOEX50	X	...	...	...
1 5/8"	GOEX52	X	...	...	...
	Kit Bag	C190C	C141B	C114B	C92C



To provide ample clearance the handles on the Offset "BOXOCKETS" are offset 10° from both of the box ends. The ends on the Open Ends are set at a 15° angle to provide an increased turning arc when working in tight places. A black industrial finish helps prevent rust and corrosion.

A OFFSET "BOXOCKETS" 12 POINT... FLANK DRIVE

Wrench Sizes	Stock Number	Head Diameters A	Head Depth B	Overall Length C
3/8" & 7/16"	GXB1214	9/16" & 41/64"	9/32"	739/64"
7/16" & 1/2"	GXB1416	41/64" & 47/64"	5/16"	83/16"
1/2" & 9/16"	GXB1618	47/64" & 53/64"	11/32"	849/64"
9/16" & 5/8"	GXB1820	53/64" & 29/32"	3/8"	93/8"
5/8" & 11/16"	GXB2022	29/32" & 63/64"	13/32"	961/64"
5/8" & 3/4"	GXB2024	29/32" & 15/64"	27/64"	101/4"
11/16" & 3/4"	GXB2224	63/64" & 15/64"	7/16"	1035/64"
3/4" & 13/16"	GXB2426	15/64" & 111/64"	15/32"	111/8"
13/16" & 7/8"	GXB2628	111/64" & 1/4"	1/2"	1131/32"
7/8" & 15/16"	GXB2830	1/4" & 111/32"	17/32"	1251/64"
15/16" & 1"	GXB3032	111/32" & 17/16"	9/16"	1319/32"
1" & 1 1/16"	GXB3234	17/16" & 1 17/32"	19/32"	1423/64"
1 1/16" & 1 1/4"	GXB3440	1 33/64" & 1 25/32"	21/32"	1531/32"
1 1/8" & 1 3/16"	GXB3638	1 39/64" & 1 45/64"	21/32"	1531/32"
1 1/4" & 1 5/16"	GXB4042	1 25/32" & 1 7/8"	23/32"	1737/64"
1 3/8" & 1 7/16"	GXB4446	1 31/32" & 2 3/64"	25/32"	193/16"
1 1/2" & 1 5/8"	GXB4852	2 1/8" & 2 5/16"	55/64"	215/32"

OFFSET "BOXOCKET" SETS

Drop "K" from stock number of set if kit bag is not desired.

Wrench Sizes	Wrench Stock Number	SET NUMBERS INCLUDE KIT BAG			
		GXB617K Set	GXB6118K Set	GXB6088K Set	GXB605K Set
3/8" & 7/16"	GXB1214	X	X	X	X
7/16" & 1/2"	GXB1416	X	X	X	X
1/2" & 9/16"	GXB1618	X	X	X	X
9/16" & 5/8"	GXB1820	X	X	X	X
5/8" & 11/16"	GXB2022	X	X	X	X
5/8" & 3/4"	GXB2024	X	X	X	X
11/16" & 3/4"	GXB2224	X	X	X	X
3/4" & 13/16"	GXB2426	X	X	X	X
13/16" & 7/8"	GXB2628	X	X	X	X
7/8" & 15/16"	GXB2830	X	X	X	X
15/16" & 1"	GXB3032	X	X	X	X
1" & 1 1/16"	GXB3234	X	X	X	X
1 1/16" & 1 1/4"	GXB3440	X	X	X	X
1 1/8" & 1 3/16"	GXB3638	X	X	X	X
1 1/4" & 1 5/16"	GXB4042	X	X	X	X
1 3/8" & 1 7/16"	GXB4446	X	X	X	X
1 1/2" & 1 5/8"	GXB4852	X	X	X	X
Kit Bag		C170	C113B	C83B	C53B

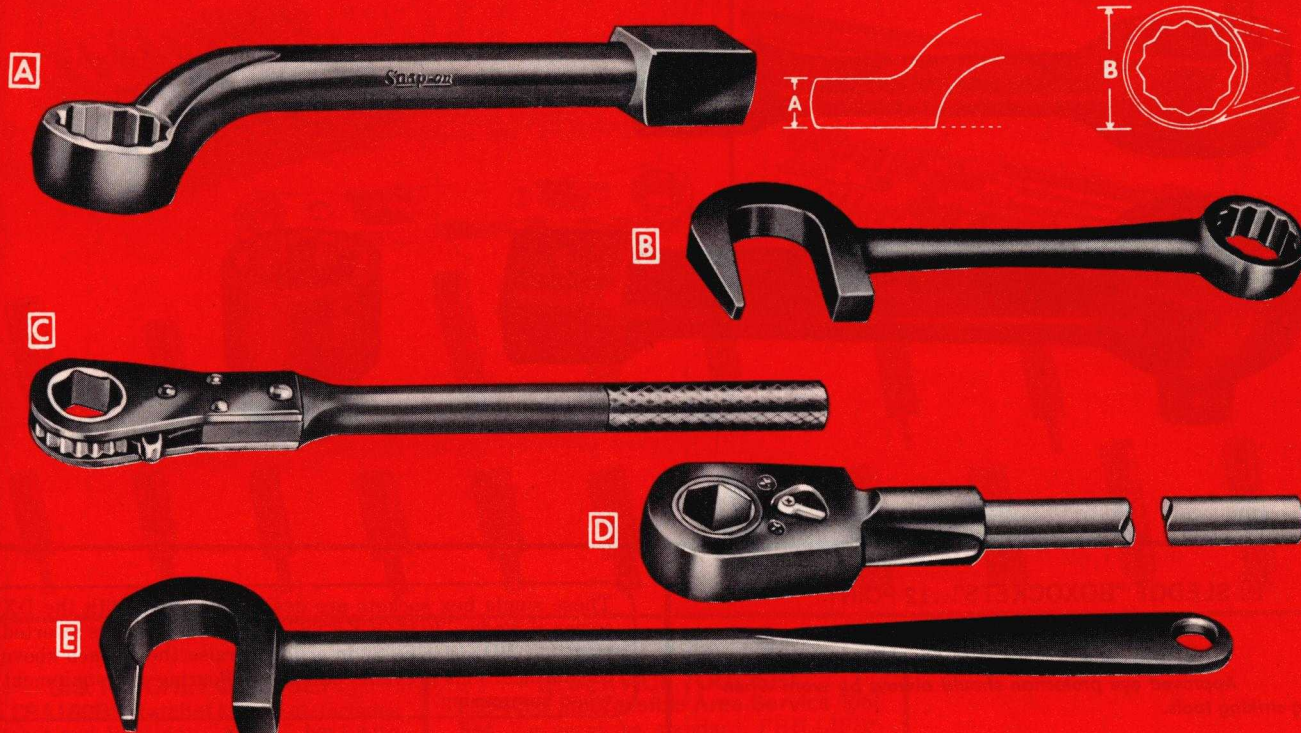
B OPEN ENDS

Wrench Sizes	Stock Number	Head Diameters A	Head Depth B	Overall Length C
1/4" & 5/16"	S810B	17/32" & 21/32"	5/32"	4"
5/16" & 3/8"	S1012B	21/32" & 25/32"	3/16"	4 1/2"
3/8" & 7/16"	S1214B	25/32" & 29/32"	3/16"	5"
7/16" & 1/2"	S1416B	29/32" & 1 1/32"	7/32"	5 1/2"
1/2" & 9/16"	S1618B	1 1/16" & 1 3/16"	7/32"	6"
9/16" & 5/8"	S1820B	1 3/16" & 1 5/16"	1/4"	6 1/2"
19/32" & 1 1/16"	S1922B	1 5/16" & 1 7/16"	1/4"	7"
5/8" & 1 1/16"	S2022B	1 5/16" & 1 7/16"	1/4"	7"
5/8" & 3/4"	S2024B	1 5/16" & 1 9/16"	9/32"	7 3/4"
1 1/16" & 3/4"	S2224B	1 7/16" & 1 9/16"	9/32"	8 3/8"
3/4" & 7/8"	S2428B	1 9/16" & 1 13/16"	5/16"	10"
25/32" & 1 3/16"	S2526B	1 9/16" & 1 11/16"	5/16"	9 1/4"
7/8" & 1 5/16"	S2830B	1 13/16" & 1 5/16"	1 1/32"	11 1/8"
1 5/16" & 1"	S3032B	1 15/16" & 2 3/16"	1 1/32"	12 1/2"
1" & 1 1/8"	S3236B	2 1/8" & 2 5/16"	3/8"	13 1/4"
1 1/16" & 1 1/8"	S3436B	2 1/8" & 2 5/16"	3/8"	13 1/4"
1 1/16" & 1 1/4"	S3440B	2 3/16" & 2 9/16"	7/16"	14"
1 3/16" & 1 5/16"	S3842B	2 9/16" & 2 13/16"	1/2"	15 1/2"
1 1/4" & 1 3/8"	S4044B	2 9/16" & 2 13/16"	1/2"	15 1/2"
1 3/8" & 1 1/2"	S4448B	2 3/4" & 3"	1/2"	16 1/4"
1 1/2" & 1 5/8"	S4852B	3 1/8" & 3 3/8"	19/32"	19"

OPEN END SETS

Drop "K" from stock number of set if kit bag is not desired.

Wrench Sizes	Wrench Stock Number	SET NUMBERS INCLUDE KIT BAG				
		OEB820K Set	OEB815K Set	OEB811K Set	OEB808K Set	OEB806K Set
1/4" & 5/16"	S810B	X	X	X	X	...
5/16" & 3/8"	S1012B	X	X	X	X	...
3/8" & 7/16"	S1214B	X	X	X	X	X
7/16" & 1/2"	S1416B	X	X	X	X	...
1/2" & 9/16"	S1618B	X	X	X	X	X
9/16" & 5/8"	S1820B	X	X	X	X	...
19/32" & 1 1/16"	S1922B	X	X	X	X	X
5/8" & 1 1/16"	S2022B	X	X	X	X	...
5/8" & 3/4"	S2024B	X	X	X	X	X
1 1/16" & 3/4"	S2224B	X	X	X	X	...
3/4" & 7/8"	S2428B	X	X	X	X	...
25/32" & 1 3/16"	S2526B	X	X	X	X	X
7/8" & 1 5/16"	S2830B	X	X	X	X	X
1 5/16" & 1"	S3032B	X	X	X	X	...
1" & 1 1/8"	S3236B	X	X	X	X	...
1 1/16" & 1 1/8"	S3436B	X	X	X	X	...
1 1/16" & 1 1/4"	S3440B	X	X	X	X	...
1 3/16" & 1 5/16"	S3842B	X	X	X	X	...
1 1/4" & 1 3/8"	S4044B	X	X	X	X	...
1 3/8" & 1 1/2"	S4448B	X	X	X	X	...
1 1/2" & 1 5/8"	S4852B	X	X	X	X	...
Kit Bag		C200	C150B	C116B	C87	C62B



A STRIKING "BOXOCKETS"...12 POINT

CAUTION: Approved eye protection should always be worn when using striking tools.

Fed. Spec. GGG-W-636E			Head Depth A	Head Diameter B	Overall Length
Inch Size	Metric	Stock Number			
1 1/16"	27 mm	HX340	5/8"	1 11/16"	10 3/4"
1 1/8"	29 mm	HX360	1 1/16"	1 3/4"	11"
1 1/4"	32 mm	HX400A	3/4"	1 15/16"	11 5/64"
1 5/16"	33 mm	HX420	13/16"	2"	11 3/4"
1 3/8"	35 mm	HX440	7/8"	2 3/32"	11 3/4"
1 7/16"	36 mm	HX460	7/8"	2 3/16"	12 1/4"
1 1/2"	38 mm	HX480	15/16"	2 1/4"	12 1/4"
1 5/8"	41 mm	HX520	1"	2 7/16"	12 3/4"
1 11/16"	43 mm	HX540	1 1/16"	2 1/2"	13"
1 3/4"	44 mm	HX560	1 1/16"	2 1/2"	13"
1 13/16"	46 mm	HX580	1 1/8"	2 11/16"	13 1/2"
1 7/8"	47 mm	HX600	1 1/8"	2 3/4"	13 1/2"
2"	51 mm	HX640	1 1/4"	2 15/16"	14"
2 3/16"	55 mm	HX700	1 5/16"	3 3/16"	14 1/2"
2 1/4"	57 mm	HX720	1 9/16"	3 1/4"	14 1/2"
2 3/8"	60 mm	HX760	1 3/8"	3 7/16"	15"
2 9/16"	65 mm	HX820	1 1/2"	3 11/16"	15 1/2"
2 5/8"	67 mm	HX840	1 1/2"	3 3/4"	15 1/2"
2 3/4"	70 mm	HX880	1 5/8"	4"	16"
2 15/16"	75 mm	HX940	1 11/16"	4 3/16"	17"
3 1/8"	79 mm	HX1000	1 3/4"	4 7/16"	17 19/64"

HX621 Set. Includes "BOXOCKETS" HX340 thru HX1000.

B VALVE PERSUADER PACKING NUT WRENCH

CAUTION: Approved eye protection should always be worn when using striking tools.

B3302A Wrench. This dual purpose wrench incorporates two different working ends. One end is a "persuader" similar to N6893B at the right. The opposite end is a 1 1/16" double hex box wrench for tightening 5/8" packing nuts. Overall length 9 1/2".

RATCHETING "BOXOCKETS"...6 POINT

CAUTION: For longer tool life and best performance, always keep wrench opening free of dirt and grease. Also periodically clean and lubricate ratchet mechanism with light oil to help ensure safe operation.

C STANDARD MODEL

Wrench Size	Stock Number	Head Depth	Head Width	Overall Length
7/16"	R714	13/32"	15/16"	6 1/2"
1/2"	R716	13/32"	15/16"	6 1/2"
5/8"	R720	15/32"	1 3/16"	8"

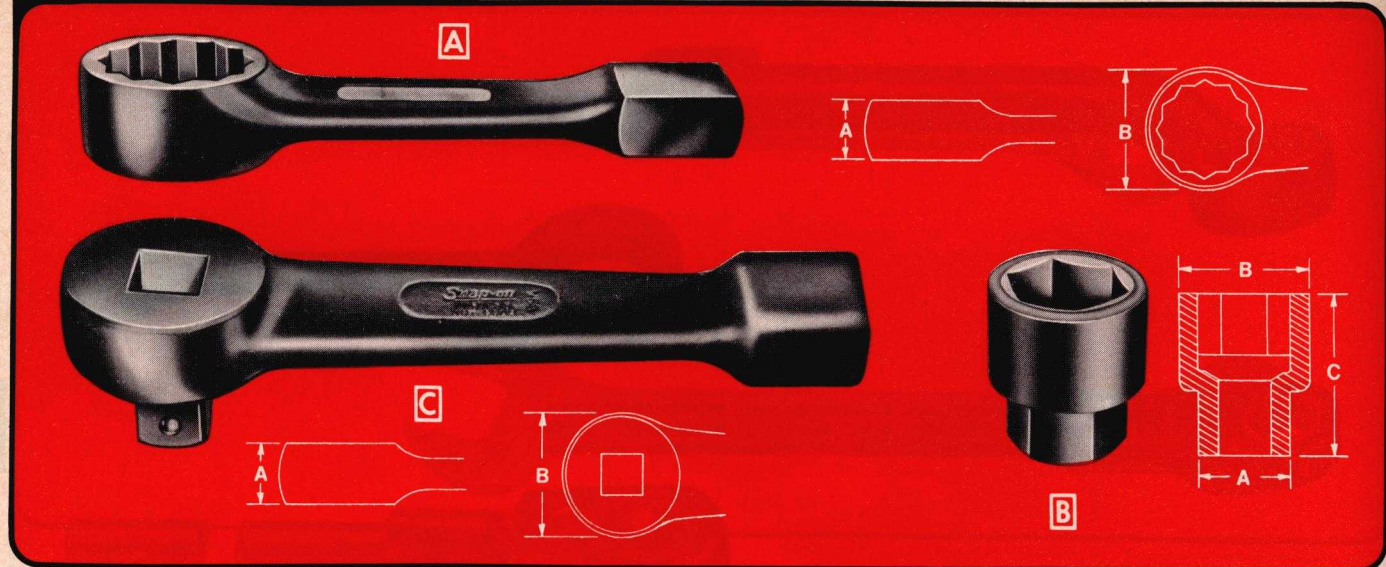
D DETACHABLE HEAD MODELS

Available on special order only.

COMPLETE TOOL			HEAD ONLY		HANDLE ONLY	
Wrench Size	Stock Number	Overall Length	Stock Number	Head Depth	Head Width	Stock Number
13/16"	L7226A	24"	L7226BY	1 3/16"	2 9/16"	L72H
7/8"	L7228A	24"	L7228BY	1 3/16"	2 9/16"	L72H
15/16"	L7230A	24"	L7230BY	1 3/16"	2 9/16"	L72H
1"	L7232A	24"	L7232BY	1 3/16"	2 9/16"	L72H
1 1/16"	L7234A	24"	L7234BY	1 3/16"	2 9/16"	L72H
1 1/8"	L7236A	24"	L7236BY	1 3/16"	2 9/16"	L72H

E VALVE PERSUADER WRENCH

N6893B Wrench. A "persuader" end provides extra leverage on valve wheels. Hooks around wheel rims and spokes up to 1 1/4" in diameter. Overall length 15".



A SLEDGE "BOXOCKETS"... 12 POINT

CAUTION: Approved eye protection should always be worn when using striking tools.

These single hex sockets are designed for use with the DX series of Sledge "BOXOCKETS" at the left. They are inserted into the "BOXOCKETS" in order to raise the wrench above the surface. This prevents damage to flooring and equipment when hammering.

B INSERT SOCKETS

Wrench Size	Stock No.	Male End Hex Drive A	Outside Diameter B	Overall Length C
1 1/4"	▲ H400	1 1/4"	2 1/8"	2 3/4"
1 3/8"	▲ H440	1 3/8"	2 3/8"	3"
1 1/2"	● H480	1 1/2"	2 3/8"	2 7/8"
1 5/8"	● H520	1 5/8"	2 5/8"	3 3/8"
1 11/16"	● H540	1 11/16"	2 3/4"	3 1/2"
1 3/4"	▲ H560	1 3/4"	2 3/4"	3 1/2"
1 13/16"	● H580	1 13/16"	2 7/8"	3 1/2"
1 7/8"	● H600	1 7/8"	2 15/16"	3 5/8"
2"	● H640	2"	3"	3 3/4"
2 1/16"	▲ H660	2 1/16"	3 1/8"	3 7/8"
2 1/8"	● H680	2 1/8"	3 1/8"	3 7/8"
2 3/16"	▲ H700	2 3/16"	3 3/8"	3 7/8"
2 1/4"	● H720	2 1/4"	3 3/8"	4"
2 5/16"	▲ H740	2 5/16"	3 3/8"	4 1/4"
2 3/8"	● H760	2 3/8"	3 1/2"	4 1/8"
2 1/2"	▲ H800	2 1/2"	3 11/16"	4 1/2"
2 9/16"	● H820	2 9/16"	3 3/4"	4 1/4"
2 5/8"	● H840	2 5/8"	3 7/8"	4 1/2"
2 3/4"	● H880	2 3/4"	4 1/8"	4 3/4"
2 15/16"	● H940	2 15/16"	4 3/8"	4 7/8"
3 1/8"	● H1000	3 1/8"	4 5/8"	5 1/4"
3 1/2"	● H1120	3 1/2"	4 1/8"	5 3/4"
3 3/4"	● H1200	3 3/4"	5 9/16"	6 3/16"
4 1/8"	▲ H1320	4 1/8"	5 7/8"	6 3/4"
4 5/8"	▲ H1480	4 5/8"	6 1/2"	7 1/2"

516H Set. Includes all sockets indicated with a (●).

▲ Special order only.

C SLUGGING WRENCH

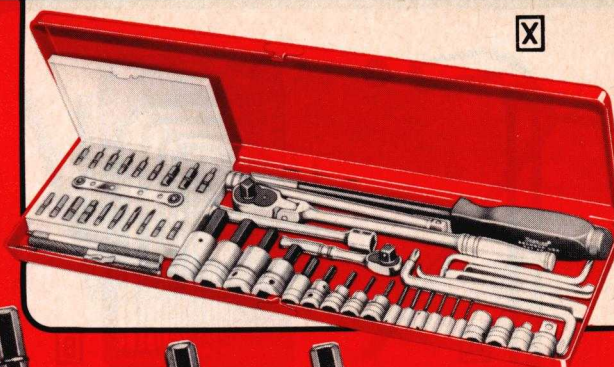
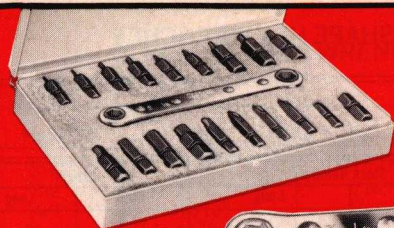
For pipe and boiler maintenance, servicing mill motor nuts, tearing down compressors, turbines, generators, and other nut turning operations where handle offset and sledge hammer tightening is needed. Flat handle design resists springing. Square hole in top of wrench permits use of 1" drive extension bar to steady the wrench.

Square Drive	Stock No.	Head Depth A	Head Width B	Overall Length
1"	IMDX33	1 1/2"	3"	11 1/2"

▲ Fed. Spec. GGG-W-636E		Stock No.	Head Depth A	Head Diameter B	Overall Length
Wrench Size					
Inch Size	Metric				
1 1/4"	32 mm	†DX140	15/16"	2 1/16"	7 5/8"
1 5/16"	33 mm	†DX142	15/16"	2 1/16"	7 5/8"
1 3/8"	35 mm	†DX144	1"	2 1/4"	7 5/8"
1 7/16"	36 mm	†DX146	1"	2 1/4"	7 5/8"
1 1/2"	38 mm	†DX148	1"	2 1/4"	7 3/4"
1 5/8"	41 mm	†DX152	1 1/8"	2 7/16"	7 23/32"
1 11/16"	43 mm	†DX154	1 1/8"	2 1/2"	7 3/4"
1 13/16"	46 mm	†DX158	1 1/4"	2 11/16"	7 27/32"
1 7/8"	47 mm	†DX160	1 1/4"	2 3/4"	7 27/32"
2"	51 mm	†DX164	1 3/8"	2 15/16"	11 15/32"
2 1/16"	52 mm	▲ DX166	1 3/8"	3"	11 1/2"
2 3/16"	56 mm	▲ DX170	1 1/2"	3 3/16"	11 19/32"
2 1/4"	57 mm	▲ DX172	1 1/2"	3 1/4"	11 5/8"
2 3/8"	60 mm	▲ DX176	1 5/8"	3 7/16"	11 23/32"
2 7/16"	62 mm	DX178	1 5/8"	3 1/2"	11 3/4"
2 1/2"	63 mm	DX180	1 5/8"	3 1/2"	11 23/32"
2 9/16"	65 mm	DX182	1 3/4"	3 11/16"	12 27/32"
2 5/8"	67 mm	▲ DX184	1 3/4"	3 13/16"	12 29/32"
2 3/4"	70 mm	▲ DX188	1 7/8"	4 1/16"	14 1/32"
2 13/16"	71 mm	▲ DX190	1 7/8"	4 1/8"	14 1/16"
2 15/16"	75 mm	▲ DX194	2"	4 5/16"	14 5/32"
3"	76 mm	▲ DX196	2"	4 3/8"	14 3/16"
3 1/8"	79 mm	▲ DX1100	2 1/4"	4 9/16"	17 9/32"
3 3/8"	85 mm	▲ DX1108	2 1/4"	4 7/8"	17 1/16"
3 1/2"	89 mm	▲ DX1112	2 3/8"	5 1/16"	17 17/32"
3 3/4"	95 mm	▲ DX1120	2 5/8"	5 3/8"	17 11/16"
3 7/8"	98 mm	DX1124	2 5/8"	5 1/2"	17 3/4"
4 1/8"	105 mm	DX1132	2 7/8"	5 7/8"	17 15/16"
4 1/4"	108 mm	DX1136	2 7/8"	6"	18"
4 1/2"	114 mm	DX1144	3 1/8"	6 1/2"	19 7/8"
4 5/8"	117 mm	DX1148	3 1/8"	6 11/16"	19 31/32"

DX631 Set. Sledge "BOXOCKETS" DX140 thru DX1148.

†Flank Drive



U.S. RATCHET & BIT SET

A **CRA180BK Ratchet & Bit Set.** Includes ratchet and 19 bits (1/4" & 5/16" hex) with retaining rings. Compact PB22 Plastic Case is ideal for safe and convenient carrying.

Stock No.	Description
B CRD8A	1/4" Square Bit (5/16" hex)
C CRS8A	1/4" Screw Bit (1/4" hex)
D CRS12A	3/8" Screw Bit (5/16" hex)
E CRP1B	#1 PHILLIPS® Bit (1/4" hex)
F CRP2B	#2 PHILLIPS® Bit (1/4" hex)
G CRA.050A	.050" Hex Bit (1/4" hex)
H CRA2A	1/16" Hex Bit (1/4" hex)
J CRA2.5A	5/64" Hex Bit (1/4" hex)
K CRA3A	3/32" Hex Bit (1/4" hex)
L CRA3.5A	7/64" Hex Bit (1/4" hex)
M CRA4A	1/8" Hex Bit (1/4" hex)
N CRA4.5A	9/64" Hex Bit (5/16" hex)
P CRA5A	5/32" Hex Bit (5/16" hex)
Q CRA6A	3/16" Hex Bit (5/16" hex)
R CRA7A	7/32" Hex Bit (1/4" hex)
S CRA8A	1/4" Hex Bit (1/4" hex)
T CRA10A	5/16" Hex Bit (5/16" hex)
U CRZ1	#1 POZIDRIV® Bit (1/4" hex)
V CRZ2	#2 POZIDRIV® Bit (1/4" hex)
W R810S	Ratchet (1/4" & 5/16" hex)

X SERVICE TOOL SET

2054IAB Inaccessible Area Service Tool Set. For servicing standard, PHILLIPS®, POZIDRIV® and hex screws with maximum convenience.

Stock No.	Description	Page No.
1/4" DRIVE		
TM1	3/8" to 1/4" Male Adaptor	47
TMA2	1/16" Hex Wrench	48
TMA2 1/2	5/64" Hex Wrench	48
TMA3	3/32" Hex Wrench	48
TMA3 1/2	7/64" Hex Wrench	48
TMA4	1/8" Hex Wrench	48
TMA4 1/2	9/64" Hex Wrench	48
3/8" DRIVE		
F731	Flex-Head Ratchet	52
FA5A	5/32" Hex Wrench	58
FA6A	3/16" Hex Wrench	58
FA7A	7/32" Hex Wrench	58
FA8A	1/4" Hex Wrench	58
FA10B	5/16" Hex Wrench	58
FBS8	1/4" Hex Bit Socket	143
FBS9	5/16" Hex Bit Socket	143
FM70	Small Head Ratchet	52
FX6	6" Extension	54
FX8	8" Extension	54

Stock No.	Description	Page No.
1/2" DRIVE		
A2	3/8" to 1/2" Male Adaptor	69
SA12B	3/8" Hex Wrench	69
SA14A	7/16" Hex Wrench	69
SA16A	1/2" Hex Wrench	69
SA18A	9/16" Hex Wrench	69
OTHER TOOLS		
O20	1/4" x 1/32" Std. Off. S.D.	142
O30	5/16" x 1/32" Std. Off. S.D.	142
O40	3/8" x 3/64" Std. Off. S.D.	142
CRA180BK	Ratchet & Bit Set. (left)	142
GA230	Small Size Scr. Starter	142
GA261A	PHILLIPS® Scr. Starter	142
KRA284	Metal Box	—
SS5A	Std. Size Scr. Starter	142
SSDM80A	Screwdriver Set	143
ST012B	#1 x #2 PHILLIPS® Off. S.D.	142
ST034B	#3 x #4 PHILLIPS® Off. S.D.	142

HEX DRIVERS

Ideal for production and technician type applications. Provide all the benefits of a screwdriver where hex fastener configurations are used.

Stock Number	Hex Size	Blade Length	Handle Length	Overall Length
NDA028	.028"	1 3/4"	2"	3 3/4"
NDA035	.035"	1 3/4"	2"	3 3/4"
NDA050	.050"	2"	2 3/4"	4 3/4"
NDA2	1/16"	2 1/4"	2 3/4"	5"
NDA2.5	5/64"	3"	2 3/4"	5 3/4"
NDA3	3/32"	3 1/2"	3 3/4"	7 1/4"
NDA3.5	7/64"	3 3/4"	3 3/4"	7 1/2"
NDA4	1/8"	3 3/4"	3 3/4"	7 1/2"
NDA4.5	9/64"	4"	3 3/4"	7 3/4"
NDA5	5/32"	4 1/2"	3 3/4"	8 1/4"
NDA6	3/16"	4 1/2"	3 3/4"	8 1/4"
NDA7	7/32"	4 3/4"	4"	8 3/4"
NDA8	1/4"	5"	4"	9"
NDA10	5/16"	5 1/2"	4"	9 1/2"

NDA140 Set. Drivers NDA028 thru NDA10.



METRIC RATCHETING SCREWDRIVER SET

CRAM150K Set. Includes ratchet and 14 bits (1/4" drive). Set is packaged in PB22 Plastic Case.

Stock No.	Description
CRAM1.5	1.5 mm Hex Driver
CRAM2	2 mm Hex Driver
CRAM2.5	2.5 mm Hex Driver
CRAM3	3 mm Hex Driver
CRAM4	4 mm Hex Driver
CRAM5	5 mm Hex Driver
CRAM6	6 mm Hex Driver
CRAM7	7 mm Hex Driver
CRAM8	8 mm Hex Driver
CRS8A	1/4" Screwdriver
CRD8A	1/4" Sq. Driver
CRS12A	5/16" Screwdriver
CRZ1	#1 POZIDRIV® Bit
CRZ2	#2 POZIDRIV® Bit
R810S	Ratchet

Wrenches

HEX & TORX®

A "L" SHAPE HEX WRENCHES

U.S.

Wrench Size	Stock Number		Length	
	Std.	Long	Std.	Long
.028"	AW028	—	1 1/4"	—
.035"	AW035	—	1 5/16"	—
3/64"	AW050	—	1 3/4"	—
1/16"	AW2	—	1 3/4"	—
5/64"	AW2 1/2	—	1 7/8"	—
3/32"	AW3	AWL3	2"	3 3/8"
7/64"	AW3 1/2	AWL3 1/2	2 1/8"	3 1/2"
1/8"	AW4	AWL4	2 1/4"	3 3/4"
9/64"	AW4 1/2	AWL4 1/2	2 3/8"	4"
5/32"	AW5	AWL5	2 1/2"	4 1/8"
3/16"	AW6	AWL6	2 3/4"	4 1/2"
7/32"	AW7	AWL7	3"	4 7/8"
1/4"	AW8	AWL8	3 1/4"	5 1/4"
5/16"	AW10	AWL10	3 3/4"	6"
3/8"	AW12	AWL12	4 1/4"	6 3/4"
7/16"	AW14	AWL14	4 3/4"	7 1/2"
1/2"	AW16	AWL16	5 1/4"	8 1/4"
9/16"	AW18	AWL18	5 3/4"	9"
5/8"	AW20	AWL20	6 1/4"	9 3/4"
3/4"	AW24	—	7 1/4"	—

[B] AW1013AK Set. 13 wrenches AW028 thru AW8 in C10C Kit Bag.

[C] AW1013K Set. 13 wrenches AW050 thru AW12 in C112B Kit Bag.

[D] AW1015AK Set. 15 wrenches AW028 thru AW12 in C154 Kit Bag.

[E] AW1020K Set. 20 wrenches AW028 thru AW24 in C84B Kit Bag.

[F] AWL1010K Set. 10 wrenches AWL3 thru AWL12 in C15B Kit Bag.

AWL1014K Set. (not shown) 14 wrenches, AWL3-AWL20 in C67 Kit Bag.

METRIC

Wrench Size	Stock Number		Length/mm	
	Std.	Long	Std.	Long
1.5 mm	—	AWML1.5	—	77.7
2 mm	AWM2C	AWML2	47.7	83
2.5 mm	AWM2.5C	AWML2.5	52	89.8
3 mm	AWM3C	AWML3	58.6	100
4 mm	AWM4C	AWML4	65.5	107
5 mm	AWM5C	AWML5	75.6	118.5
6 mm	AWM6C	AWML6	82.2	141
7 mm	AWM7C	—	92.4	—
8 mm	AWM8C	AWML8	99.2	161.5
9 mm	AWM9C	—	105.1	—
10 mm	AWM10C	AWML10	111.4	172
12 mm	AWM12C	AWML12	139.3	215
14 mm	AWM14C	—	138.8	—
17 mm	AWM17C	—	167.2	—
19 mm	AWM19C	—	193.6	—

†Length is approximately to centerline of hex.

AWM140CK Set. 14 wrenches AWM2C thru AWM19C in C84B Kit Bag.

AWM110CK Set. 11 wrenches AWM2C thru AWM12C in C15B Kit Bag.

AWML110 Set. All long metric wrenches above.

TORX® WRENCHES

Stock No.	Fastener Size	Flute Length	Overall Length
AWT8	T8	.137"	1 7/8"
AWT9	T9	.148"	1 7/8"
AWT10	T10	.162"	2"
AWT15	T15	.194"	2 1/8"
AWT20	T20	.228"	2 1/4"
AWT25	T25	.262"	2 3/8"
AWT27	T27	.295"	2 1/2"
AWT30	T30	.218"	2 3/4"
AWT40	T40	.262"	3"
AWT50	T50	.348"	3 3/4"
AWT55	T55	.442"	4 1/4"

[H] AWT90K Set. TORX® Wrenches AWT10 thru AWT55 in C11C Kit Bag.

HEX & SPLINE

Wrenches

A BRACKET HEX WRENCH SETS

U.S.			
Key Size	AW5K Set Length	Key Size	AW9K Set Length
3/16"	3 3/8"	.050"	1 1/2"
7/32"	3 5/8"	1/16"	1 9/16"
1/4"	4 5/16"	5/64"	1 3/4"
5/16"	4 13/16"	3/32"	1 7/8"
3/8"	5"	7/64"	1 15/16"
		1/8"	2 1/8"
		9/64"	2 1/4"
		5/32"	2 3/8"
		3/16"	2 5/8"

METRIC			
Key Size	AWM5K Set Lgth./mm	Key Size	AWM7K Set Lgth./mm
4 mm	73	1.5 mm	36.5
5 mm	77.7	2 mm	38.1
6 mm	82.6	2.5 mm	42.8
8 mm	98.4	3 mm	47.6
10 mm	101.6	4 mm	54
		5 mm	60.3
		6 mm	66.7

B "T" SHAPE WRENCHES

The hex keys listed below have "T" handle grips for greater turning power and more leverage.

U.S.

Wrench Size	6" Key Stock Number	9" Key Stock Number
3/32"	GAW1606	GAW1906
7/64"	GAW1607	GAW1907
1/8"	GAW1608	GAW1908
9/64"	GAW1609	GAW1909
5/32"	GAW1610	GAW1910
3/16"	GAW1612	GAW1912
7/32"	GAW1614	GAW1914
1/4"	GAW1616	GAW1916
5/16"	GAW1620	GAW1920
3/8"	GAW1624	GAW1924

GAW1600A Set. Includes GAW1606 thru GAW1616 in plastic pouch.

GAW1900A Set. Includes GAW1906 thru GAW1916 in plastic pouch.

METRIC

Wrench Size	Stock Number	Approx. Length/mm
2.5 mm	YAWM19025	244.5
3 mm	YAWM1903	244.5
4 mm	YAWM1904	244.5
5 mm	YAWM1905	244.5
6 mm	YAWM1906	244.5

YAWM1900 Set. Wrenches YAWM19025 thru YAWM1906 in a plastic pouch.

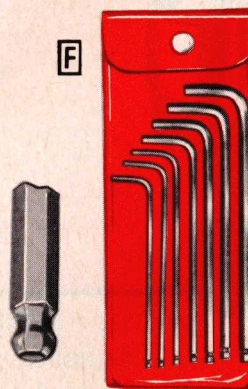
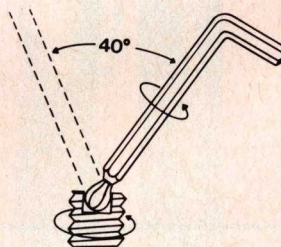
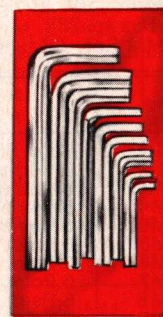
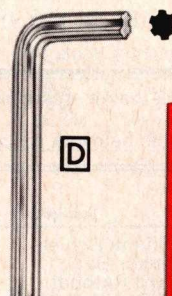
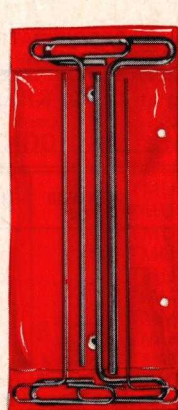
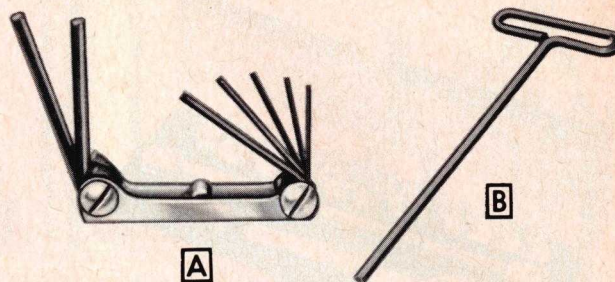
D "L" MULTI-SPLINE WRENCHES

Stock Number	No. of Flutes	Outside Diameter	Stock Number	No. of Flutes	Outside Diameter
MS2	4	.033"	MS16	6	.144"
MS3	4	.048"	MS20	6	.183"
MS4	6	.060"	MS24	6	.216"
MS5	4	.069"	MS28	6	.251"
MS6	4	.076"	MS32	6	.291"
MS7	6	.072"	MS40	6	.372"
MS8	6	.096"	MS48	6	.454"
MS10	6	.110"			

MS1015KA Set. Includes the 15 wrenches above, MS2 thru MS48, in a C16 Kit Bag.

MS1015 Set. Above set of wrenches but without kit bag.

MS1010K Set. Includes MS4 thru MS32 in C16 Kit Bag.



F SPEED HEX WRENCH SET

GA245 Set. Ball hex on arm end of each wrench speeds and simplifies servicing of socket set screws. Can be inserted into screws at up to 20 degree angle. Set has 7 wrenches in kit bag, sizes 5/64", 3/32", 7/64", 1/8", 9/64", 5/32" and 3/16".

1/4"

METRIC CHROME SETS/SOCKETS

A



15 TOOLS

B



19 TOOLS

SPECIFICATIONS IN MILLIMETRES

115TMMB Set. Tools below designated with an "X" in KRA229 Metal Box (p. 23).

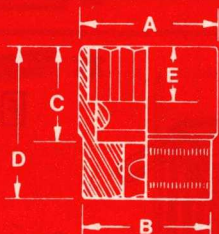
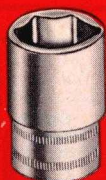
119TMMP Set. All tools below in a plastic tray.

115TMM Set. All tools below in a plastic tray.

CONTENTS OF SETS

Stock No.	Description	A 115TMMB Set	B 119TMMP Set	Stock No.	Description	A 115TMMB Set	B 119TMMP Set
TM4A	Long Shank Driver	...	X	TMM10	6 Point Standard Socket (10 mm)	X	X
TM10F	6" Breaker Bar	...	X	TMM11	6 Point Standard Socket (11 mm)	X	X
TM70B	Standard Ratchet	X	X	TMM12	6 Point Standard Socket (12 mm)	X	X
TMM4	6 Point Standard Socket (4 mm)	X	X	TMM13	6 Point Standard Socket (13 mm)	X	X
TMM5	6 Point Standard Socket (5 mm)	X	X	TMM14	6 Point Standard Socket (14 mm)	X	X
TMM5.5	6 Point Standard Socket (5.5 mm)	...	X	TMU8	Universal Joint	X	X
TMM6	6 Point Standard Socket (6 mm)	X	X	TMX2	2" Extension	X	X
TMM7	6 Point Standard Socket (7 mm)	X	X	TMX4	4" Extension	X	X
TMM8	6 Point Standard Socket (8 mm)	X	X	TMX60	6" Extension	...	X
TMM9	6 Point Standard Socket (9 mm)	X	X				

C



D



SPECIFICATIONS IN MILLIMETRES

C STANDARD

6 POINT... FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
4 mm	*TMM4	6.5	12.4	14.3	22.4	4.1
5 mm	*TMM5	7.8	12.4	14.3	22.4	4.8
5.5 mm	TMM5.5	8.4	12.4	14.3	22.4	4.8
6 mm	TMM6	9.1	12.4	14.3	22.4	5.6
7 mm	TMM7	10.4	12.4	14.3	22.4	5.6
8 mm	TMM8	11.5	12.4	14.3	22.4	5.6
9 mm	TMM9	12.4	13.2	14.3	22.4	5.6
10 mm	TMM10	14	13.2	14.3	22.4	5.6
11 mm	TMM11	15.2	14.3	14.3	22.4	6.4
12 mm	TMM12	16.4	15.6	14.3	22.4	6.4
13 mm	TMM13	17.1	16.4	14.3	22.4	7.1
14 mm	TMM14	18.7	18.1	14.3	22.4	7.9

112TMM Set. Sockets TMM4 thru TMM14.

112TMMY Set. Sockets TMM4 thru TMM14 on A265 Socket Rail with clips.

*Standard broach.

Snap-on

SOCKET FEATURES

- **Metric Identification.** Metric sockets are coded for easy identification in your tool box. Metric sockets have knurled bands near the drive end to easily distinguish them as metric.
- **"Flank Drive"** Patented "Flank Drive" is incorporated on metric sockets 5.5 millimetres to 50 millimetres. Snap-on sockets with "Flank Drive" configuration are 5 to 10 percent stronger than comparable sockets with ordinary broaching and provide a fifteen to twenty percent increase in application pressure without damage to the fastener.
- **Chrome Plating.** Sockets are chrome plated for rust resistance and easy cleanup.

CAUTION: For hand operation only.

D STANDARD

12 POINT... FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
5 mm	*TMMD5	7.8	12.4	14.3	22.4	4.6
5.5 mm	TMMD5.5	8.4	12.4	14.3	22.4	4.6
6 mm	TMMD6	9.1	12.4	14.3	22.4	5.6
7 mm	TMMD7	10.4	12.4	14.3	22.4	5.6
8 mm	TMMD8	11.5	12.4	14.3	22.4	5.6
9 mm	TMMD9	12.5	13.2	14.3	22.4	5.6
10 mm	TMMD10	14	13.2	14.3	22.4	5.6
11 mm	TMMD11	15.2	14.3	14.3	22.4	6.4
12 mm	TMMD12	16.5	15.4	14.3	22.4	6.4
13 mm	TMMD13	17.2	16.4	14.3	22.4	7.1
14 mm	TMMD14	18.8	18.1	14.3	22.4	7.9

111TMMD Set. Sockets TMMD5 thru TMMD14.

111TMMDY Set. Sockets TMMD5 thru TMMD14 on A265 Socket Rail with clips.

*Standard broach.

METRIC CHROME SOCKETS/DRIVERS

1/4"

CAUTION: For hand operation only.

A DEEP

6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
4 mm	*STMM4	6.5	12.4	25.4	50.8	4.1
5 mm	*STMM5	7.8	12.4	25.4	50.8	4.8
6 mm	STMM6	9.1	12.4	42.4	50.8	5.6
7 mm	STMM7	10.4	12.4	42.4	50.8	5.6
8 mm	STMM8	11.7	12.4	42.4	50.8	6.4
9 mm	STMM9	12.4	13.2	42.4	50.8	7.1
10 mm	STMM10	14	13.2	42.4	50.8	7.1
11 mm	STMM11	15.2	14.3	43.1	50.8	7.1
12 mm	STMM12	16.4	15.6	43.1	50.8	7.1
13 mm	STMM13	17.1	16.4	43.5	50.8	7.1
14 mm	STMM14	18.7	18.1	44.1	50.8	7.9

111STMM Set. Sockets STMM4 thru STMM14.

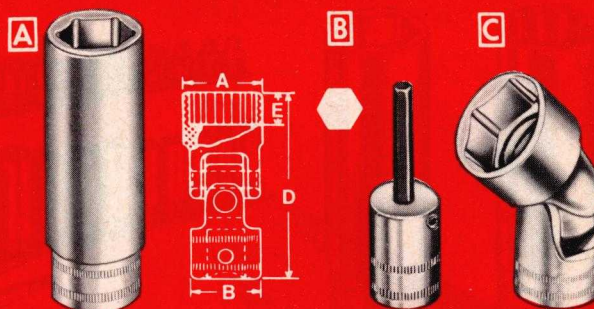
111STMMY Set. Sockets STMM4 thru STMM14 on A265 Socket Rail with clips.

*Standard broach.

B HEX DRIVERS

Wrench Size	Stock Number	Outside Dia. Skt.	Bit Length	Overall Length	Bit Stock No.	Roll Pin/Set Screw Stock No.
2 mm	TMAM2	12.4	25.4	47.8	TMAM2-2	ME3F11
2.5 mm	TMAM2.5	12.4	25.4	47.8	TMAM2.5-2	ME3F11
3 mm	TMAM3	12.4	25.4	47.8	TMAM3-2	ME3F11
4 mm	TMAM4	12.4	25.4	47.8	FAM4-2	ESD319
5 mm	TMAM5	12.4	25.4	47.8	FAM5-2	ME2C42
6 mm	TMAM6	12.4	25.4	47.8	FAM6-2	ME2C42

106TMAM Set. Hex drivers TMAM2 thru TMAM6.



SPECIFICATIONS IN MILLIMETRES

C "FLEXOCKETS"

6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Overall Length D	Min. Broach Depth E
5.5 mm	TMUSM5.5	8.4	12.4	29.5	3
6 mm	TMUSM6	9.6	12.4	29.7	3.3
7 mm	TMUSM7	10.7	12.4	30.7	3.8
8 mm	TMUSM8	11.8	12.4	30.5	4.3
9 mm	TMUSM9	12.5	12.4	31.2	4.3
10 mm	TMUSM10	13.8	12.4	32.5	5.3
11 mm	TMUSM11	15.6	12.4	33.3	6.1
12 mm	TMUSM12	16.4	12.4	34.8	6.4
13 mm	TMUSM13	17.2	12.4	35.8	7.1
14 mm	TMUSM14	18.8	14	39.9	8.6

110TMUSM Set. "FLEXOCKETS" TMUSM5.5 thru TMUSM14.

110TMUSMY Set. "FLEXOCKETS" TMUSM5.5 thru TMUSM14 on A265 Socket Rail with clips.

METRIC BLACK POWER SOCKETS

CAUTION: Power sockets are designed to be used with power drivers such as nut runners, multiple spindle machines and angle head nut drivers. They are not for use with impact drivers.

D STANDARD POWER SOCKETS

6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
5.5 mm	GMM5.5	8.8	12.4	13.3	22.4	3.2
7 mm	GMM7	10.7	12.4	13.3	22.4	4
8 mm	GMM8	11.8	12.4	13.3	22.4	4
10 mm	GMM10	14	14	13.3	22.4	4.7
11 mm	GMM11	15.6	15.6	13.3	22.4	5.5
13 mm	GMM13	18.3	18.3	13.3	22.4	7.1

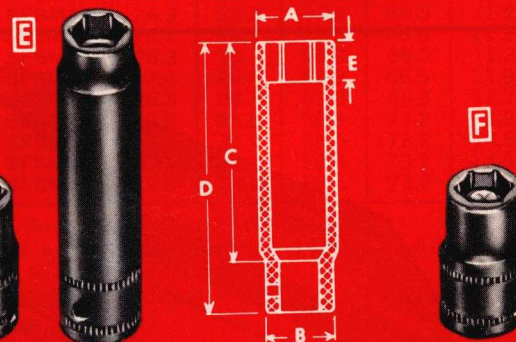
106GMM Set. Sockets GMM5.5 thru GMM13.

E DEEP POWER SOCKETS

6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
7 mm	GSMM7	10.7	12.4	41.8	50.8	4
8 mm	GSMM8	11.8	12.4	41.8	50.8	4
10 mm	GSMM10	14	14	41.8	50.8	4.7
11 mm	GSMM11	15.6	15.6	41.8	50.8	5.5
13 mm	GSMM13	18	18	41.8	50.8	7.1

105GSMM Set. Sockets GSMM7 thru GSMM13.



SPECIFICATIONS IN MILLIMETRES

F MAGNETIC POWER SOCKETS

6 POINT...FLANK DRIVE

Removable magnet. Replaceable socket blanks are available.

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Overall Length D	Min. Broach Depth E	Repl. Socket Less Mag.
5.5 mm	MGMM5.5	9.9	12.4	22.2	1.8	MGMM5.5-1
6 mm	MGMM6	10.9	12.4	22.2	1.9	MGMM6-1
7 mm	MGMM7	11.9	14	22.2	2.2	MGMM7-1
8 mm	MGMM8	12.7	14	22.2	2.3	MGMM8-1
10 mm	MGMM10	14.8	14.8	23.8	3	MGMM10-1
11 mm	MGMM11	17.2	17.2	23.8	3.4	MGMM11-1

106MGMM Set. Sockets MGMM5.5 thru MGMM11.

A



22 TOOLS

B



61 TOOLS

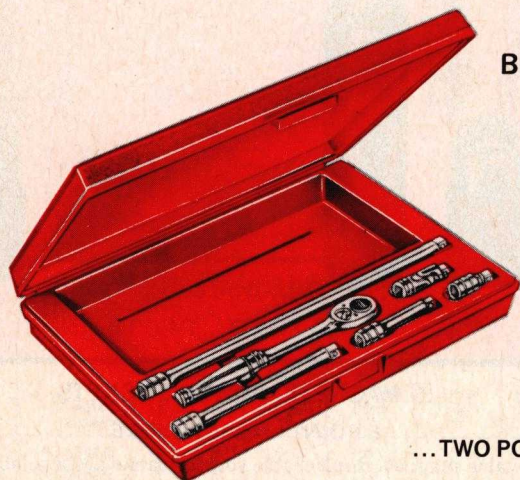
3/8" DRIVE METRIC CHROME SETS

A 222FSMP Set. Includes seven standard 6-point sockets **FSM101, 111, 131, 141, 151, 171, and 191** (p. 115); seven deep 6-point sockets **SFSM10, 11, 13, 14, 15, 17 and 19** (p. 115); **F10LB** Nut Spinner (p. 54); **F720** Ratchet (p. 52); **FU8A** Universal Joint (p. 54); **FX2, 4 and 8** Extensions (p. 54); **S9704F** and **S9706** Spark Plug Sockets (p. 239) in a sturdy **PB17** Plastic Box for easy storage and portability.

B 261MFB Set. Includes eleven standard 12-point sockets **FM9** thru **19** (p. 115); **211SFM** Socket Set (12-point deep) (p. 115); **215FSUM** "FLEXOCKET" Set (6-point deep) (p. 116); **212FSM** Socket Set (6-point standard) (p. 115); **F4LA** Speeder (p. 54); **F10LB** Nut Spinner (p. 54); **F40A** Handle (p. 54); **F67B** Adaptor (p. 53); **F720** Ratchet (p. 52); **FRS70** Spinner (p. 53); **FX2, 6, 11, 61A** Extensions (p. 54); **FU8A** Universal Joint (p. 54) and **S9704F** Spark Plug Socket (p. 239) in a **KRA250B** Metal Box.

261MF Set. Above set without box.

BUILD YOUR OWN METRIC SOCKET SETS!



...TWO POSSIBLE COMBINATIONS

C 206FSP Set. Start with the **206FSP Set** which contains the **F720** Ratchet, **FU8A** Universal Joint and the **FX1, 2, 6, and 11** Extension Bars packaged in the **PB16** Plastic Box. From there, build your own metric socket wrench sets! Design your set to fit your individual needs. Add any of the suggested socket sets listed at right, or choose from the many special purpose sockets *Snap-on* has available. The **206FSP Set**, packaged in the **PB16** Plastic Box, with a large enough cavity to accommodate as many as four rows of standard length sockets; two rows of deep or "FLEXOCKETS"; or a combination of two rows of standard length and one row of deep sockets or "FLEXOCKETS" in either U.S. or metric sizes.

Suggested Metric Socket Sets:

- 212FSMY** 6 pt. Standard Socket Set (12 pc.) (p. 115).
- 221FSMY** 6 pt. Standard Socket Set (21 pc.) (p. 115).
- 212FMY** 12 pt. Standard Socket Set (12 pc.) (p. 115).
- 211SFSMY** 6 pt. Deep Socket Set (11 pc.) (p. 115).
- 211SFMY** 12 pt. Deep Socket Set (11 pc.) (p. 115).
- 208SFSUMY** 6 pt. Deep "FLEXOCKET" Set (8 pc.) (p. 116).
- 209FUMY** 12 pt. "FLEXOCKET" Set (9 pc.) (p. 116).

METRIC CHROME SOCKETS

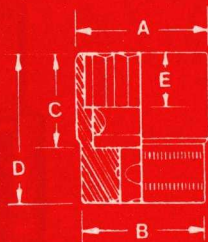
3/8"



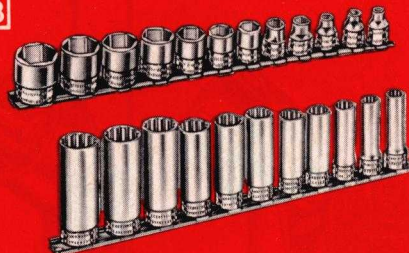
A



C



B



F



D



E

SPECIFICATIONS IN MILLIMETRES

CAUTION: For hand operation only.

STANDARD

A 6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
6 mm	FSM61	9.1	17	11.9	23	5.6
7 mm	FSM71	10.4	17	11.9	23	5.6
8 mm	FSM81	11.6	17	11.9	23	5.6
9 mm	FSM91	12	17	11.9	23	6.8
10 mm	FSM101	14	17	11.9	23	6.8
11 mm	FSM111	15.3	17	11.9	23	6.8
12 mm	FSM121	17.2	17	11.9	23.8	7.5
13 mm	FSM131	17.9	18.1	13.5	24.6	7.9
14 mm	FSM141	18.7	17.7	13.5	25.4	7.9
15 mm	FSM151	20.3	19.3	15.3	26.2	8
16 mm	FSM161	21.1	20.1	15.3	26.2	8
17 mm	FSM171	22.7	21.7	15.3	27	8.7
18 mm	FSM181	24.3	23.3	15.3	27.9	9.9
19 mm	FSM191	25.1	23.9	15.3	27.9	9.9
20 mm	FSM201	26.3	25.3	15.3	28.6	11.1
21 mm	FSM211	27.4	26.5	15.3	29.4	11.1
22 mm	FSM221	28.3	27.3	15.3	29.4	11.1
23 mm	FSM231	29.8	29.8	15.3	30.2	12.3
24 mm	FSM241	31.4	31.4	15.3	31	13
25 mm	FSM251	32.2	32.2	15.3	31.2	13.1
26 mm	FSM261	33.8	33.8	15.3	32.5	13.9

212FSM Set. Sockets FSM81 thru FSM191.

B 212FSMY Set. Sockets FSM81 thru FSM191 on A269 Socket Rail with clips.

221FSM Set. Sockets FSM61 thru FSM261.

221FSMY Set. Sockets FSM61 thru FSM261 on two A269 Socket Rails with clips.

C 12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
8 mm	FM8	11.6	17	10.4	23	5.4
9 mm	FM9	13.1	17	10.4	23	6.8
10 mm	FM10	14	17	10.4	23	6.8
11 mm	FM11	15.3	17	11.9	23	6.8
12 mm	FM12	17.3	17	11.9	23.8	7.5
13 mm	FM13	17.9	17	11.9	24.6	7.5
14 mm	FM14	18.7	17.8	13.5	25.4	7.5
15 mm	FM15	20.3	19.4	15.4	26.2	7.5
16 mm	FM16	21.1	20.2	15.4	26.2	7.5
17 mm	FM17	22.7	21.8	15.4	27	8.7
18 mm	FM18	24.3	23.2	16.5	27.8	9.9
19 mm	FM19	25.1	24	16.5	27.8	9.9
20 mm	FM20	26.3	25.3	17.5	28.6	11.1
21 mm	FM21	27.4	26.4	17.5	29.4	11.1
22 mm	FM22	28.3	27.2	17.5	29.4	11.1
23 mm	FM23	29.8	28.8	18.3	30.2	11.9
26 mm	FM26	33.8	32.9	19.8	31	11.9

212FM Set. Sockets FM8 thru FM19.

212FSM Set. Sockets FM8 thru FM19 on A269 Socket Rail with clips.

217FM Set. Sockets FM8 thru FM26.

217FSM Set. Sockets FM8 thru FM26 on A270 Socket Rail with clips.

Metric sockets are coded for easy identification in your tool box. Sockets have knurled bands near the drive end to easily distinguish them as metric.

DEEP

D 6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
6 mm	SFSM6	9.1	17	31.8	54	5.6
7 mm	SFSM7	10.4	17	31.8	54	5.6
8 mm	SFSM8	11.6	17	31.8	54	6.4
9 mm	SFSM9	12.7	17	31.8	54	7.1
10 mm	SFSM10	14	17	31.8	54	9.7
11 mm	SFSM11	15.3	17	39.7	54	9.7
12 mm	SFSM12	17.3	17	39.7	54	9.7
13 mm	SFSM13	18.3	17.8	39.7	54	10.3
14 mm	SFSM14	18.7	17.8	47.3	60.3	10.3
15 mm	SFSM15	20.3	19.4	47.3	60.3	10.3
16 mm	SFSM16	21.1	20.1	47.3	60.3	10.3
17 mm	SFSM17	22.7	21.7	53.3	66.5	11.2
18 mm	SFSM18	24.3	23.3	53.3	66.5	11.2
19 mm	SFSM19	25.1	24.1	53.3	66.5	11.2
20 mm	SFSM20	26.3	25.3	53.3	66.5	11.2
21 mm	SFSM21	27.4	26.4	53.3	66.5	11.9
22 mm	SFSM22	28.3	27.3	53.3	66.5	12.7
23 mm	SFSM23	29.8	28.8	58.5	73.2	13.2
24 mm	SFSM24	31.4	31.4	58.5	73.2	14.5
25 mm	SFSM25	32.3	32.3	58.5	73.2	14.5
26 mm	SFSM26	33.8	33.8	58.5	73.2	15

211SFSM Set. Sockets SFSM9 thru SFSM19.

211SFSMY Set. Sockets SFSM9 thru SFSM19 on A269 Socket Rail with clips.

221SFSM Set. Sockets SFSM6 thru SFSM26.

221SFSMY Set. Sockets SFSM6 thru SFSM26 on two A269 Socket Rails with clips.

E 12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
9 mm	SFM9	12.7	17	31.8	54	7.1
10 mm	SFM10	14	17	31.8	54	9.7
11 mm	SFM11	15.3	17	39.7	54	9.7
12 mm	SFM12	17.3	17	39.7	54	9.7
13 mm	SFM13	17.9	17	39.7	54	10.3
14 mm	SFM14	18.7	17.8	47.3	60.5	10.3
15 mm	SFM15	20.3	19.4	47.3	60.5	10.3
16 mm	SFM16	21.4	20.4	47.3	60.5	10.3
17 mm	SFM17	22.7	21.8	53.3	66.7	11.1
18 mm	SFM18	24.6	23.2	53.3	66.7	11.1
19 mm	SFM19	25.1	24	53.3	66.7	11.1

211SFM Set. Sockets SFM9 thru SFM19.

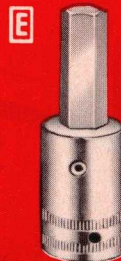
F 211FSMY Set. Sockets SFM9 thru SFM19 on A269 Socket Rail with clips.

211FSMT Set. Sockets SFM9 thru SFM19 in KTA231B Metal Tray (P. 21).

3/8"

METRIC CHROME UNITS

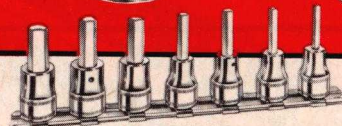
SPECIFICATIONS IN MILLIMETRES



C



F



Metric sockets are coded for easy identification in your tool box. Sockets have knurled bands near the drive end to easily distinguish them as metric.

CAUTION: For hand operation only.

A DEEP "FLEXOCKETS" 6 POINT...FLANK DRIVE

Wrench Size	Stock No.	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Overall Length D	Min. Broach Depth E
7 mm	SFSUM7	10.4	17.2	65.5	5.6
8 mm	SFSUM8	11.6	17.2	65.5	6.4
10 mm	SFSUM10	14	18.1	65.5	6.9
11 mm	SFSUM11	15.2	18.1	65.5	7.1
12 mm	SFSUM12	16.8	18.1	65.5	7.6
13 mm	SFSUM13	17.8	18.1	65.5	7.9
14 mm	SFSUM14	18.5	18.1	65.5	8.6
15 mm	SFSUM15	20.1	18.1	65.5	9.1
16 mm	SFSUM16	20.9	18.1	65.5	9.9
17 mm	SFSUM17	22.5	18.9	65.5	10.4
18 mm	SFSUM18	24.1	18.9	65.5	10.9
19 mm	SFSUM19	24.9	18.9	65.5	11.4
21 mm	SFSUM21	27.9	18.9	65.5	11.9
22 mm	SFSUM22	28.1	18.9	65.5	12.7
24 mm	SFSUM24	31.2	18.9	65.5	14.2

208SFSUM Set. "FLEXOCKETS" SFSUM10 through SFSUM17.

208SFSUMY Set. "FLEXOCKETS" SFSUM10 thru SFSUM17 on A269 Socket Rail with clips.

215SFSUM Set. "FLEXOCKETS" SFSUM7 thru SFSUM24.

215SFSUMY Set. "FLEXOCKETS" SFSUM7 thru SFSUM24 on A270 Socket Rail with clips.

B STANDARD "FLEXOCKETS" 6 POINT...FLANK DRIVE

Wrench Size	Stock No.	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Overall Length D	Min. Broach Depth E
7 mm	FSUM7	10.4	17.2	44.5	5.2
8 mm	FSUM8	11.7	17.2	45	6
10 mm	FSUM10	14	18.1	45.5	6
11 mm	FSUM11	15.3	18.1	45.5	6.4
12 mm	FSUM12	16.8	18.1	47.2	7.1
13 mm	FSUM13	18.1	18.1	47.2	7.1
14 mm	FSUM14	18.9	18.1	49.8	8.3
15 mm	FSUM15	20.5	18.1	49.8	8.3
16 mm	FSUM16	21.3	18.1	49.8	9.3
17 mm	FSUM17	22.9	18.9	54.6	10.3
18 mm	FSUM18	24.5	18.9	54.6	10.3
19 mm	FSUM19	25.3	18.9	55.4	11.2
21 mm	FSUM21	27.4	18.9	57.7	11.9
22 mm	FSUM22	28.5	18.9	57.7	11.9
24 mm	FSUM24	31.5	18.9	61	14

206FSUM Set. "FLEXOCKETS" FSUM10, 12, 13, 14, 15 and 17 in a plastic tray.

215FSUM Set. "FLEXOCKETS" FSUM7 thru FSUM24.

215FSUMY Set. "FLEXOCKETS" FSUM7 thru FSUM24 on A270 Socket Rail with clips.

D STANDARD "FLEXOCKETS" 12 POINT...FLANK DRIVE

Wrench Size	Stock No.	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Overall Length D	Min. Broach Depth E
10 mm	FUM10	14.1	17	45.5	6
12 mm	FUM12	16.8	17	47.2	7.1
13 mm	FUM13	18.1	17	47.2	7.1
14 mm	FUM14	18.9	17	49.8	8.3
15 mm	FUM15	20.5	17	49.8	8.3
16 mm	FUM16	21.3	17	49.8	9.7
17 mm	FUM17	22.9	17.8	54.6	10.3
18 mm	FUM18	24.5	17.8	54.6	10.3
19 mm	FUM19	25.3	17.8	55.4	11.1

209FUM Set. "FLEXOCKETS" FUM10 thru FUM19.

209FUMY Set. "FLEXOCKETS" FUM10 thru FUM19 on A269 Socket Rail with clips.

E HEX HEAD DRIVERS STANDARD

Wrench Size	Stock No.	Outside Dia. Socket	Bit Length	Overall Length	Bit Stock No.	Roll Pin Stock No.
4 mm	FAM4A	17	25.4	53.1	FAM4-2	ESD322
5 mm	FAM5A	17	25.4	53.1	FAM5-2	ESD303
6 mm	FAM6A	17	25.4	53.1	FAM6-2	ESD303
7 mm	FAM7	17	25.4	53.1	FAM7-2	ME2C43
8 mm	FAM8A	17	25.4	53.1	FAM8-2	ESD304
9 mm	FAM9	18.6	25.4	53.1	FAM9-2	ESD304
10 mm	FAM10B	18.6	23.9	51.6	SAM10-2	ESD304

207FAM Set. Hex head drivers FAM4A thru FAM10B.

207FAMY Set. Hex head drivers FAM4A thru FAM10B on A265 Socket Rail with clips.

LONG

Wrench Size	Stock No.	Outside Dia. Socket	Bit Length	Overall Length	Bit Stock No.	Roll Pin Stock No.
4 mm	FAML4	17	127	154.7	FAML4-2	ESD322
5 mm	FAML5	17	127	154.7	FAML5-2	ESD303
6 mm	FAML6	17	127	154.7	FAML6-2	ESD303
7 mm	FAML7	17	127	154.7	FAML7-2	ME2C43
8 mm	FAML8	17	127	154.7	FAML8-2	ESD304
10 mm	FAML10	18.6	127	154.7	FAML10-2	ESD304

206FAML Set. Hex head drivers FAML4 thru FAML10.

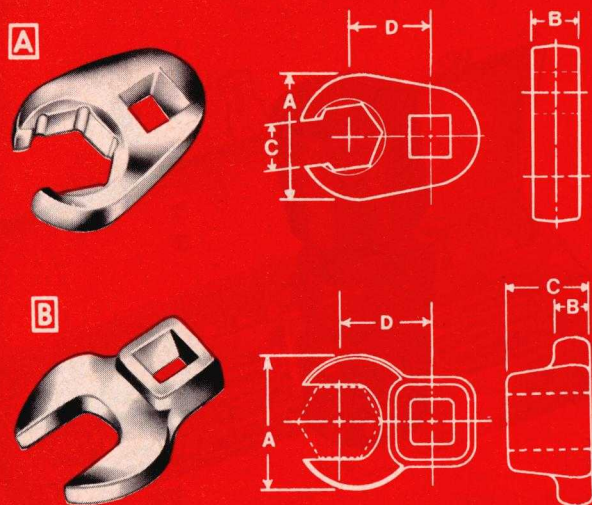
206FAMLY Set. Hex head drivers FAML4 thru FAML10 on A265 Socket Rail with clips.

G TRIPLE SQUARE

Wrench Size	Stock No.	Outside Dia. Socket	Bit Length	Overall Length	Bit Stock No.	Roll Pin Stock No.
6 mm	FTSM6A	17	20.6	47.8	FTSM6-2	ME2C34
8 mm	FTSM8B	17	28.4	55.5	FTSM8A2	ME2C34
8 mm	FTSM8L	17	55.6	82.6	FTSM8L2	ME2C34

METRIC CROWFOOT/POWER SOCKETS

3/8"



SPECIFICATIONS IN MILLIMETRES

CAUTION: Excessive torque could result in jaw slippage and/or spreading.

CHROME CROWFOOT WRENCHES

A FLARE NUT 6 POINT...FLANK DRIVE

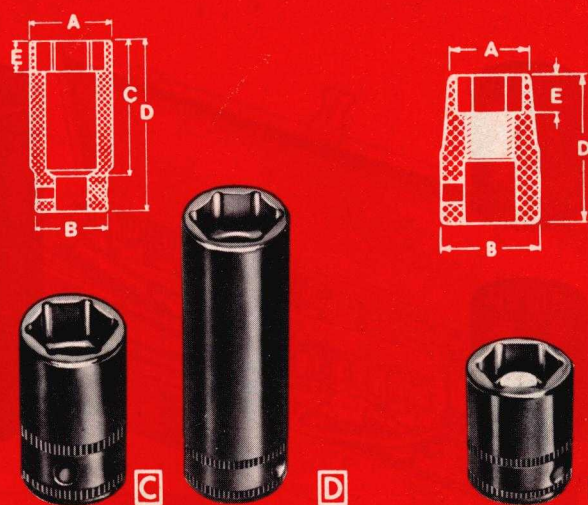
Wrench Size	Stock Number	Head Width A	Head Depth B	Min. Wall Opening C	Center to Center D	Overall Length
9 mm	FRHM9	22.4	9.7	6.5	14.2	33.3
10 mm	FRHM10	22.9	9.7	7.2	14.2	35.1
11 mm	FRHM11	22.9	9.7	8.1	14.2	35.1
12 mm	FRHM12	25.4	9.7	8.7	14.2	36.6
13 mm	FRHM13	25.4	9.7	9.1	14.2	36.6
14 mm	FRHM14	28.4	11.2	10.2	18.8	40.9
15 mm	FRHM15	28.4	11.2	10.9	18.8	40.9
16 mm	FRHM16	28.4	11.2	11.4	18.8	40.9
17 mm	FRHM17	33.3	12.7	12.3	20.6	44.7
18 mm	FRHM18	33.3	12.7	13.3	20.6	44.7
19 mm	FRHM19	33.3	12.7	14.4	20.6	44.7
20 mm	FRHM20	41.1	14.2	15	22.1	50.3
21 mm	FRHM21	41.1	14.2	16	22.1	50.3
22 mm	FRHM22	41.1	14.2	16.8	22.1	50.3

214FRHM Set. Wrenches FRHM9 thru FRHM22.

B OPEN END

Wrench Size	Stock Number	Head Width A	Min. Head Depth B	Total Depth C	Center to Center D	Overall Length
9 mm	FCOM9	19.8	4.3	10.3	17.1	31.8
10 mm	FCOM10	21.3	4.6	10.8	17.9	32.3
11 mm	FCOM11	23.1	4.7	10.8	18.3	33.3
12 mm	FCOM12	24.9	4.9	10.8	18.6	34.3
13 mm	FCOM13	26.9	5.1	10.8	19.7	35.8
14 mm	FCOM14	30.2	5.8	10.8	21.8	38.6
15 mm	FCOM15	31.8	6.4	10.8	22.1	40.1
16 mm	FCOM16	33.3	6.6	10.8	24.2	42.2
17 mm	FCOM17	36.6	7.4	10.8	25	43.7
18 mm	FCOM18	38.1	8	10.8	25.1	45
19 mm	FCOM19	39.6	8.2	10.8	26.9	46.7
20 mm	FCOM20	42.9	9	10.8	30.6	52.1
21 mm	FCOM21	42.9	9	10.8	31.2	52.1
22 mm	FCOM22	46	9.9	9.9	33.3	55.1
23 mm	FCOM23	49.3	9.9	9.9	35.3	58.4
24 mm	FCOM24	49.3	9.9	9.9	36.2	58.4

216FCOM Set. Wrenches FCOM9 thru FCOM24.



SPECIFICATIONS IN MILLIMETRES

CAUTION: Power sockets are for use with power drivers like nut runners, multiple spindle machines and angle head nut drivers. They are not for use with impact wrenches.

BLACK POWER SOCKETS

C STANDARD 6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
10 mm	PFM10	14.4	17.2	14.2	25.4	4.7
11 mm	PFM11	15.6	17.2	14.2	25.4	5.5
12 mm	PFM12	17	17.2	15.7	26.9	6.4
13 mm	PFM13	18.1	18.1	15.7	26.9	7.1
15 mm	PFM15	20.5	20.5	18.7	28.4	8.7
17 mm	PFM17	23.4	23.4	20.3	30.2	9.9
18 mm	PFM18	24.3	24.3	21.3	31.2	10.3
19 mm	PFM19	24.3	24.3	21.3	31.2	11.5

208PFM Set. Sockets PFM10 thru PFM19.

208PFMY Set. Sockets PFM10 thru PFM19 on A265 Socket Rail with clips.

D DEEP 6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
10 mm	SPFM10	14.4	17.5	38.1	53.8	4.7
11 mm	SPFM11	15.6	17.5	42.7	53.8	5.5
12 mm	SPFM12	17	17.5	42.7	53.8	6.4
13 mm	SPFM13	18.1	18.1	42.7	53.8	7.1
15 mm	SPFM15	20.5	20.5	47.8	60.5	8.7
17 mm	SPFM17	23.4	23.4	52.8	66.8	9.9
18 mm	SPFM18	24.3	24.3	52.8	66.8	10.4
19 mm	SPFM19	25.1	25.1	52.8	66.8	11.5

208SPFM Set. Sockets SPFM10 thru SPFM19.

208SPFMY Set. Sockets SPFM10 thru SPFM19 on A265 Socket Rail with clips.

E MAGNETIC 6 POINT...FLANK DRIVE

Removable magnet. Replaceable socket blanks are available.

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Overall Length D	Min. Broach Depth E	Repl. Socket Less Mag.
8 mm	MFIMM8	12.8	17.2	26.9	2.4	MFIMM8-1
10 mm	MFIMM10	15.1	17.2	26.9	3	MFIMM10-1
11 mm	MFIMM11	16.7	18.9	26.9	3.4	MFIMM11-1
13 mm	MFIMM13	19.3	19.3	26.9	3.8	MFIMM13-1
15 mm	MFIMM15	21.8	21.8	26.9	3.8	MFIMM15-1

205MFIMM Set. Magnetic sockets MFIMM8 thru MFIMM15.

3/8"

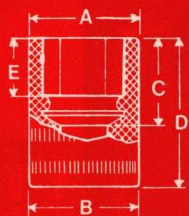
METRIC BLACK IMPACT SOCKETS



A



B



C



D



SPECIFICATIONS IN MILLIMETRES

CAUTION: These sockets are for use with impact wrenches. Approved eye protection should always be worn when using impact equipment.

Metric sockets are coded for easy identification in your tool box. Sockets have knurled bands near the drive end to easily distinguish them as metric.

A STANDARD IMPACT 6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
8 mm	IMFM8	12.8	17.2	11.2	22.4	6.4
9 mm	IMFM9	14	17.2	11.2	22.4	6.4
10 mm	IMFM10	15.1	17.2	11.2	22.4	7.1
11 mm	IMFM11	16.7	18.9	11.2	22.4	7.1
12 mm	IMFM12	18.2	18.9	11.2	23.9	7.1
13 mm	IMFM13	19.4	19.4	11.2	23.9	7.1
14 mm	IMFM14	20.5	20.5	12.7	23.9	7.1
15 mm	IMFM15	21.8	21.8	12.7	23.9	7.1
16 mm	IMFM16	22.6	22.6	12.7	23.9	7.1
17 mm	IMFM17	24	24	14.2	25.4	8.6
18 mm	IMFM18	25.1	25.1	14.2	26.2	9.7
19 mm	IMFM19	26.4	26.4	16	26.9	10.4
21 mm	IMFM21	28.8	28.8	17.5	29.2	11.9
24 mm	IMFM24	32.6	32.6	20.8	32.5	14

214IMFM Set. Sockets IMFM8 thru IMFM24.

214IMFMY Set. Sockets IMFM8 thru IMFM24 on A267 Socket Rail with clips.

B STANDARD IMPACT 12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
10 mm	IMDFM10	15.1	17.2	11.2	22.2	7.1
11 mm	IMDFM11	16.7	18.9	11.2	22.2	7.1
12 mm	IMDFM12	18.2	18.9	11.1	23.8	7.1
13 mm	IMDFM13	19.8	19.4	11.1	23.8	7.1

C DEEP IMPACT 6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
8 mm	SIMFM8	12.8	17.2	42.8	54	6.4
9 mm	SIMFM9	14	17.2	42.8	54	7.1
10 mm	SIMFM10	15.1	17.2	42.8	54	9.7
11 mm	SIMFM11	16.7	18.9	42.8	54	9.7
12 mm	SIMFM12	18.2	18.9	42.8	54	9.7
13 mm	SIMFM13	19.4	19.4	42.8	54	10.4
14 mm	SIMFM14	20.5	20.5	47.2	60.5	10.4
15 mm	SIMFM15	21.8	21.8	47.2	60.5	10.4
16 mm	SIMFM16	22.6	22.6	47.2	60.5	10.4
17 mm	SIMFM17	24	24	53.1	66.5	11.2
18 mm	SIMFM18	25.1	25.1	53.1	66.5	11.2
19 mm	SIMFM19	26.4	26.4	53.3	66.5	11.2
21 mm	SIMFM21	28.8	28.8	53.3	66.5	11.8
24 mm	SIMFM24	32.6	32.6	59.1	73.2	14.5

214SIMFM Set. Sockets SIMFM8 thru SIMFM24.

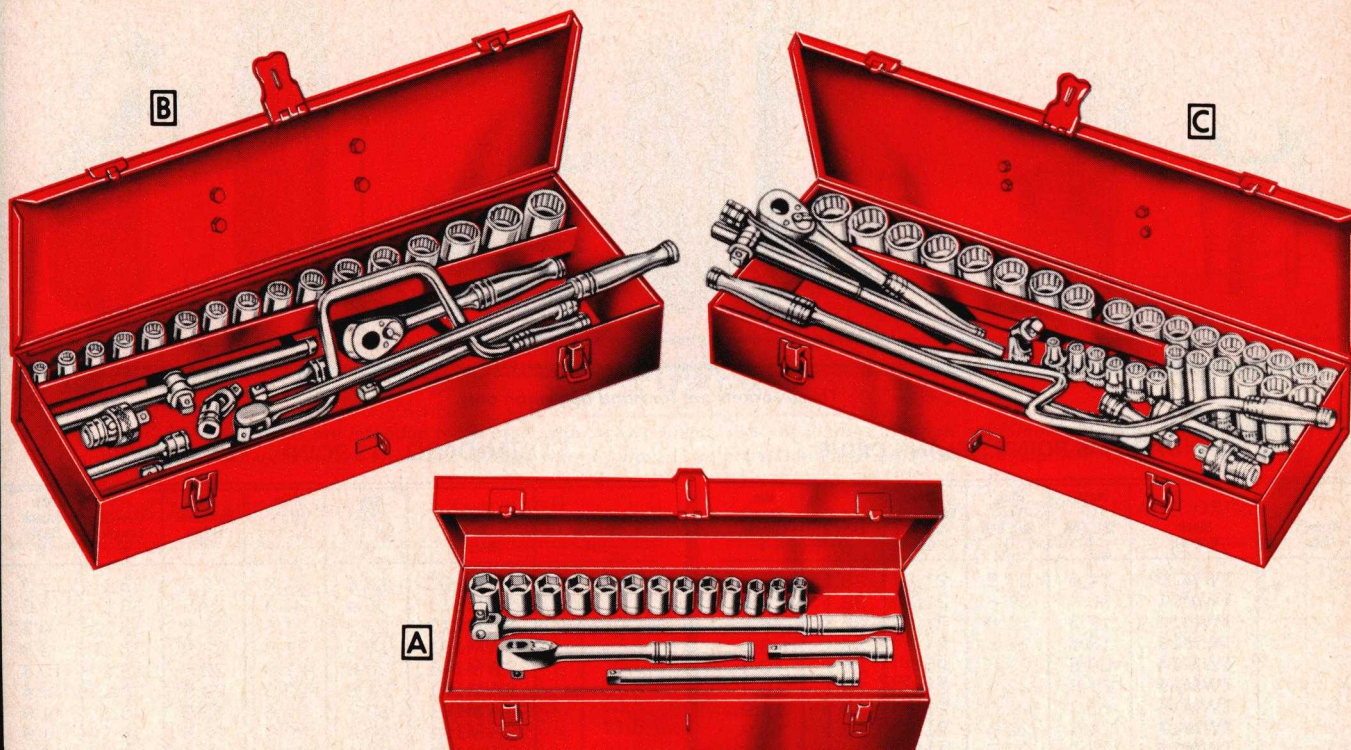
214SIMFMY Set. Sockets SIMFM8 thru SIMFM24 on A267 Socket Rail with clips.

D IMPACT "FLEXOCKETS" 6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Overall Length D	Min. Broach Depth E
9 mm	IPFM9	14	22.2	49.8	6.4
10 mm	IPFM10	15.4	22.2	50.8	7.1
11 mm	IPFM11	16.7	22.2	52.1	7.1
12 mm	IPFM12	18.1	22.2	53.1	7.1
13 mm	IPFM13	18.9	22.2	54.1	7.9
14 mm	IPFM14	20.5	22.2	55.4	7.9
15 mm	IPFM15	21.8	22.2	56.4	7.9
16 mm	IPFM16	22.6	22.2	57.4	8.6
17 mm	IPFM17	23.4	23	62.2	8.6
18 mm	IPFM18	25.1	23	64	9.7
19 mm	IPFM19	26.4	23	65	10.4

211IPFM Set. "FLEXOCKETS" IPFM9 thru IPFM19.

211IPFMY Set. "FLEXOCKETS" IPFM9 thru IPFM19 on A267 Socket Rail with clips.



1/2" DRIVE METRIC CHROME SETS

A 17-PIECE SET

317MMB Set. Includes **SL710** Ratchet (p. 65); **SN18A** Breaker Bar (p. 66); **SX5** and **SX10** Extensions (p. 66); and thirteen 6 pt. sockets, **TWM12** through **TWM24** (p. 120). Tools are contained in **KRA251A** Metal Box (p. 22).

317MM Set. Above set without metal box.

B 25-PIECE SET

325MMB Set. Includes **S710** Ratchet (p. 65); **S67** Ratchet Adaptor (p. 65); **S4** Nut Speeder (p. 66); **SN18A** Breaker Bar (p. 66); **S12L** Slide Bar (p. 66); **SX3**, **SX5** and **SX10** Extension Bars (p. 66); **S8** Universal Joint (p. 69) and sixteen 12 point sockets, **SWM101** through **SWM251** (p. 120). Tools are contained in **KRA280** Metal Box (p. 23).

325MM Set. Above set without metal box.

C 38-PIECE SET

338MMB Set. Includes **SL710** Ratchet (p. 65); **S67** Ratchet Adaptor (p. 65); **S4** Nut Speeder (p. 66); **SN18A** Breaker Bar (p. 66); **S12L** Slide Bar (p. 66); **SX3**, **SX5** and **SX10** Extension Bars (p. 66); **S8** Universal Joint (p. 69); twenty-three 12 point sockets, **323SWM** Set (p. 120) and six deep 12 point sockets, **306SM** Set (p. 120). Tools are contained in **KRA280** Metal Box (p. 23).

338MM Set. Above set without metal box.

SOCKET-TYPE DRIVERS

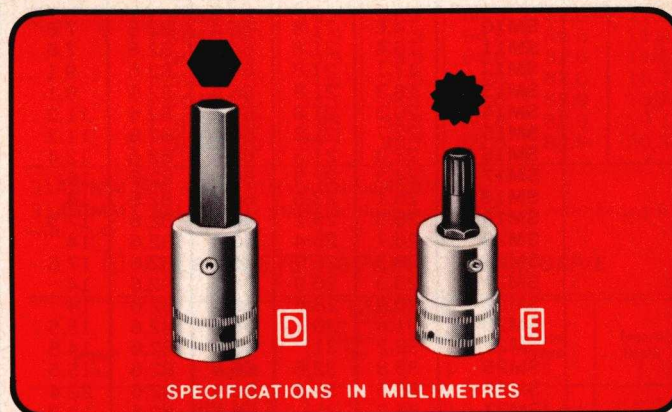
CAUTION: These units are for hand operation only.

D HEX HEAD

Wrench Size	Stock No.	Outside Dia. Socket	Bit Length	Overall Length	Bit Stock No.	Roll Pin Stock No.
6 mm	SAM6A	23.4	22.4	60.5	FAM6-2	ESD300
8 mm	SAM8A	23.4	23.9	62	FAM8-2	ME2C28
10 mm	SAM10A	23.4	23.9	62	SAM10-2	ME2C28
12 mm	SAM12A	25.1	35.1	77.7	SAM12-2	ESD311
14 mm	SAM14A	25.3	35.1	81	SAM14-2	ESD311
17 mm	SAM17A	32.6	35.1	93.7	SAM17-2	ESD306

306SAM Set. Drivers SAM6A through SAM17A.

306SAMY Set. Drivers SAM6A through SAM17A on A265 Socket Rail with clips.



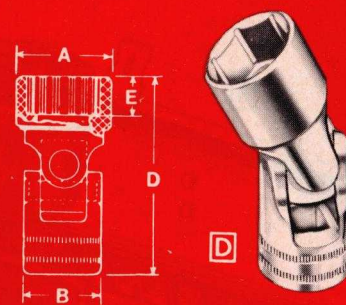
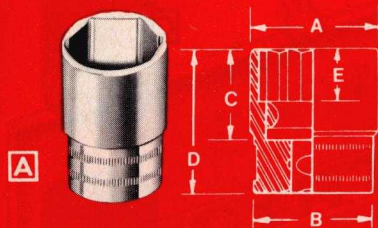
SPECIFICATIONS IN MILLIMETRES

E TRIPLE SQUARE

Fastener Thread Size	Stock No.	Outside Dia. Socket	Bit Length	Overall Length	Bit Stock No.	Roll Pin Stock No.
10 mm	STSM10B	25.1	46	88.9	STSM10A2	ESD311
12 mm	STSM12A	25.1	63.4	106.4	STSM12-2	ESD311
12 mm	STSM12LA	25.1	101.6	144.5	STSM12L2	ESD311

1/2"

METRIC CHROME SOCKETS



CAUTION: These sockets are for hand operation only.

A STANDARD 6 POINT...FLANK DRIVE

C STANDARD 12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
10 mm	TWM10	14.6	21.8	21.2	38.1	7.1
11 mm	TWM11	16.4	21.8	21.2	38.1	7.6
12 mm	TWM12	17.3	21.8	21.2	38.1	8.8
13 mm	TWM13	18.6	21.8	21.2	38.1	8.8
14 mm	TWM14	20.6	21.8	21.2	38.1	10.4
15 mm	TWM15	21.8	22.6	21.2	38.1	10.4
16 mm	TWM16	22.7	21.6	21.2	38.1	11.9
17 mm	TWM17	24.3	22.9	21.2	38.1	11.9
18 mm	TWM18	25.1	23.7	21.2	38.1	13.5
19 mm	TWM19	26.3	25.1	21.2	38.1	13.5
20 mm	TWM20	26.7	25.3	22.4	38.1	13.5
21 mm	TWM21	28.3	26.9	22.4	38.1	13.5
22 mm	TWM22	29.8	28.6	22.4	38.1	13.5
23 mm	TWM23	31.4	30.2	22.4	38.1	14.3
24 mm	TWM24	32.2	31	22.4	38.1	14.3
25 mm	TWM25	33.8	32.6	22.4	38.1	14.3
26 mm	TWM26	34.6	33.4	25.3	41.3	15.1
27 mm	TWM27	36.2	35	25.4	41.3	15.1

310TWM Set. Ten sockets TWM10 through TWM19.

310TWMY Set. Ten sockets TWM10 through TWM19 on A269 Socket Rail with clips.

318TWM Set. Sockets TWM10 through TWM27.

318TWMY Set. Sockets TWM10 through TWM27 on two A269 Socket Rails with clips.

B DEEP 12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
10 mm	SM10	14.6	21.8	66.4	82.6	7.6
11 mm	SM11	16.4	21.8	66.4	82.6	7.6
12 mm	SM12	17.1	21.8	66.4	82.6	9.1
13 mm	SM13	18.3	21.8	66.4	82.6	9.1
14 mm	SM14	20.3	21.8	66.4	82.6	11.2
15 mm	SM15	22.7	21.8	66.4	82.6	11.2
16 mm	SM16	22.8	21.5	66.4	82.6	12.4
17 mm	SM17	24.3	22.9	66.4	82.6	16
18 mm	SM18	25.1	23.6	66.4	82.6	14
19 mm	SM19	26.3	25.1	66.4	82.6	17.5
20 mm	SM20	26.7	25.4	66.4	82.6	14
20.6 mm	SM20.6	28.3	26.9	66.4	82.6	17.5
21 mm	SM21	28.3	26.9	66.4	82.6	14
22 mm	SM22	29.9	28.6	66.4	82.6	14
23 mm	SM23	31.4	30.1	66.4	82.6	15.5
24 mm	SM24	32.2	31	66.4	82.6	14.5
25 mm	SM25	33.8	32.6	66.4	82.6	15.5
26 mm	SM26	34.6	33.4	66.4	82.6	22.4
27 mm	SM27	36.2	35	66.4	82.6	18.8
28 mm	SM28	37.7	36.3	66.4	82.6	18.8
29 mm	SM29	39.3	38	66.4	82.6	18.8
30 mm	SM30	40.9	39.6	66.4	82.6	18.8
31 mm	SM31	40.9	39.6	66.4	82.6	18.8
32 mm	SM32	42.5	41.2	66.4	82.6	18.8

306SM Set. Sockets SM14, 17, 19, 20.6, 22 and 27.

306SMY Set. Sockets SM14, 17, 19, 20.6, 22 and 27 on A265 Socket Rail with clips.

324SM Set. Sockets SM10 through SM32.

324SMY Set. Sockets SM10 through SM32 on two A270 Socket Rails with clips.

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
10 mm	SWM101	14.6	21.8	22.5	38.1	7.2
11 mm	SWM111	16.4	21.8	22.5	38.1	7.6
12 mm	SWM121	17.3	21.8	22.5	38.1	8.8
13 mm	SWM131	18.5	21.8	22.5	38.1	8.8
14 mm	SWM141	20.6	21.8	22.5	38.1	10.4
15 mm	SWM151	21.8	22.6	22.5	38.1	10.4
16 mm	SWM161	22.7	21.6	22.5	38.1	11.9
17 mm	SWM171	24.3	22.9	22.5	38.1	11.9
18 mm	SWM181	25.1	23.7	22.5	38.1	13.5
19 mm	SWM191	26.3	25.1	22.5	38.1	13.5
20 mm	SWM201	26.7	25.3	22.5	38.1	13.5
21 mm	SWM211	28.3	26.9	22.5	38.1	13.5
22 mm	SWM221	29.9	28.6	22.5	38.1	13.5
23 mm	SWM231	31.5	30.2	22.5	38.1	14.3
24 mm	SWM241	32.3	31	22.5	38.1	14.3
25 mm	SWM251	33.8	32.6	22.5	38.1	14.3
26 mm	SWM261	34.6	33.4	24.9	41.3	15.1
27 mm	SWM271	36.2	35.2	25.1	41.3	15.1
28 mm	SWM281	37.8	36.4	28.1	44.5	18.3
29 mm	SWM291	39.3	38	28.3	44.5	18.3
30 mm	SWM301	40.9	39.6	28.9	44.5	18.3
31 mm	SWM311	42.5	41.2	31.4	47.6	18.3
32 mm	SWM321	42.5	41.2	31.4	47.6	18.3

310SWM Set. Ten sockets SWM101 through SWM191.

310SWMY Set. Ten sockets, SWM101 through SWM191 on A269 Socket Rail with clips.

318SWM Set. Eighteen sockets SWM101 through SWM271.

318SWMY Set. Eighteen sockets SWM101 through SWM271 on two A269 Socket Rails with clips.

323SWM Set. Sockets SWM101 through SWM321.

323SWMY Set. Sockets SWM101 through SWM321 on two A270 Socket Rails with clips.

D "FLEXOCKETS" 6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Overall Length D	Min. Broach Depth E
15 mm	SUM15	23.4	22.5	65.5	8.6
17 mm	SUM17	23.8	22.5	69.1	9.9
19 mm	SUM19	26.9	27.3	75.2	11.4
21 mm	SUM21	28.5	27.3	76.5	11.9
22 mm	SUM22	29.8	27.3	77.2	12.7
24 mm	SUM24	32.7	27.3	79.5	14.2
27 mm	SUM27	36.2	27.3	81.5	16.3

307SUM Set. "FLEXOCKETS" SUM15 through SUM27.

307SUMY Set. "FLEXOCKETS" SUM15 through SUM27 on A269 Socket Rail with clips.

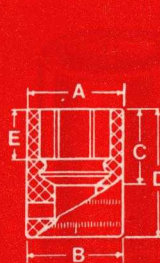
METRIC BLACK POWER/IMPACT SOCKETS

1/2"

POWER

IMPACT

SPECIFICATIONS IN MILLIMETRES



POWER

CAUTION: Power sockets are intended to be used with power drivers, like nut runners, multiple spindle machines and angle head nut drivers. Not for use with impact wrenches. Always wear approved eye protection when using power equipment.

A STANDARD...6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
13 mm	PM13	18.6	22.1	22.4	38.1	7.1
15 mm	PM15	21.8	22.6	22.4	38.1	8.7
17 mm	PM17	24.3	24.3	24.1	38.1	9.9
18 mm	PM18	25.1	25.1	24.2	38.1	10.3
19 mm	PM19	26.4	26.4	24.2	38.1	11.5
21 mm	PM21	28.3	28.3	24.2	38.1	11.9
24 mm	PM24	32.3	32.3	24.2	38.1	14.3

307PM Set. Sockets PM13 through PM24.

307PMY Set. Sockets PM13 through PM24 on A265 Socket Rail with clips.

B DEEP...6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
13 mm	SPM13	18.6	22.1	58.7	82.3	7.1
15 mm	SPM15	21.8	22.6	63.2	82.3	8.7
17 mm	SPM17	24.3	24.3	63.2	82.3	9.1
18 mm	SPM18	25.1	25.1	63.2	82.3	10.3
19 mm	SPM19	26.4	26.4	63.2	82.3	11.5
21 mm	SPM21	28.3	28.3	63.2	82.3	11.9
24 mm	SPM24	32.3	32.3	63.2	82.3	14.3

307SPM Set. Sockets SPM13 through SPM24.

307SPMY Set. Sockets SPM13 through SPM24 on A265 Socket Rail with clips.

IMPACT

CAUTION: These units are for use with impact wrenches. Approved eye protection should always be worn when using impact equipment.

C STANDARD...6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
10 mm	IMM100	15.6	22.6	22.4	38.1	7.1
11 mm	IMM110	17.8	22.6	22.4	38.1	8.4
12 mm	IMM120	18.9	24.3	22.4	38.1	9.7
13 mm	IMM130	19.8	24.3	22.4	38.1	9.7
14 mm	IMM140	22.1	24.3	22.4	38.1	10.7
15 mm	IMM150	23.2	26.4	22.4	38.1	10.7
16 mm	IMM160	24.3	26.4	22.4	38.1	11.9
17 mm	IMM170	25.4	26.7	22.4	38.1	12.7
18 mm	IMM180	26.7	26.7	22.4	38.1	12.7
19 mm	IMM190	28.3	28.3	22.4	38.1	12.7
20 mm	IMM200	29.9	29.9	22.4	38.1	14.2
21 mm	IMM210	31.5	31.5	23.1	38.1	15.7
22 mm	IMM220	33.1	33.1	23.1	38.1	15.7
23 mm	IMM230	34	34	27.2	44.5	17.3
24 mm	IMM240	34.8	34.8	27.3	44.5	19.1
25 mm	IMM250	36.4	36.4	28.2	44.5	19.6
26 mm	IMM260	37.7	37.7	32.3	50.8	19.8
27 mm	IMM270	39.3	39.3	32.3	50.8	20.3
29 mm	IMM290	41	41	32.3	50.8	21.1
30 mm	IMM300	42.6	42.6	32.3	50.8	21.6
32 mm	IMM320	45.8	45.8	36.9	50.8	22.4
36 mm	IMM360	51.6	45.8	39.2	57.2	22.4
46 mm	IMM460	64.8	47.6	49.6	69.9	29.7

315IMM Set. Sockets IMM100 through IMM240.

315IMMY Set. Sockets IMM100 through IMM240 on A270 Socket Rail with clips.

323IMM Set. Sockets IMM100 through IMM460.

323IMMY Set. Sockets IMM100 through IMM460 on two A270 Socket Rails with clips.

D DEEP...6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
10 mm	SIMM100	15.6	22.6	57.8	82.6	9.7
11 mm	SIMM110	17.8	22.6	57.8	82.6	9.7
12 mm	SIMM120	18.9	24.3	57.8	82.6	9.7
13 mm	SIMM130	19.8	24.3	57.8	82.6	10.4
14 mm	SIMM140	22.1	24.3	57.8	82.6	10.7
15 mm	SIMM150	23.2	26.4	57.8	82.6	10.7
17 mm	SIMM170	25.4	26.7	64.8	82.6	11.2
18 mm	SIMM180	26.7	26.7	64.8	82.6	11.2
19 mm	SIMM190	28.3	28.3	64.8	82.6	11.2
20 mm	SIMM200	29.9	29.9	64.8	82.6	14.2
21 mm	SIMM210	31.5	31.5	64.8	82.6	15.7
22 mm	SIMM220	33.1	33.1	69.6	88.9	15.7
24 mm	SIMM240	34.8	34.8	69.6	88.9	19.1
27 mm	SIMM270	39.7	39.7	69.6	88.9	20.3

314SIMM Set. Sockets SIMM100 through SIMM270.

314SIMMY Set. Sockets SIMM100 through SIMM270 on A270 Socket Rail with clips.

E "FLEXOCKETS"...6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Outside Diameter		Overall Length D	Broach Depth E
		Socket End A	Handle End B		
13 mm	IPLM13	19.7	23.8	73.7	8.6
14 mm	IPLM14	21.3	23.8	73.7	8.6
15 mm	IPLM15	22.6	23.8	73.7	8.6
17 mm	IPLM17	25.6	30.2	77.7	10.4
18 mm	IPLM18	26.7	30.2	77.7	10.4
19 mm	IPLM19	28.3	30.2	77.7	11.2
21 mm	IPLM21	31.5	30.2	77.7	12.7
24 mm	IPLM24	34.8	30.2	81	15

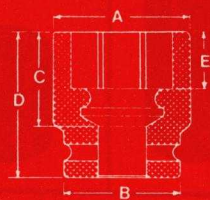
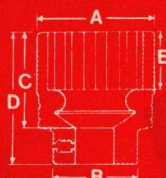
308IPLM Set. Sockets IPLM13 through IPLM24.

308IPLMY Set. Sockets IPLM13 through IPLM24 on A269 Socket Rail with clips.

3/4"

METRIC BLACK/CHROME SOCKETS

SPECIFICATIONS IN MILLIMETRES



"LOXOCKETS"

The "LOXOCKETS" listed below feature the "LOXOCKET" attaching principle. Socket is locked onto handle which has a special locking pin and can only be released by depressing a button on the handle.

CAUTION: For hand operation only.

A BLACK STANDARD

THIN WALL...12 POINT...FLANK DRIVE

This series of thin wall "LOXOCKETS" is designed for use with the manual handles on page 78. They should not be used with powered impact wrenches and nut setters.

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
27 mm	GLDH342	39.6	38.1	35	54	17.5
30 mm	GLDH382	42.9	38.1	37	57.2	21.6
35 mm	GLDH442	49.3	41.1	38.3	58.7	21.6
38 mm	GLDH482	54	41.1	41.6	63.5	25.4
46 mm	GLDH582	63.5	44.4	51.3	73.2	31.8
54 mm	*GLDH682	74.7	44.4	57.4	82.6	36.6

406GLDH Set. "LOXOCKETS" GLDH342 through GLDH682.

406GLDHMY Set. "LOXOCKETS" GLDH342 through GLDH682 on A270 Socket Rail with clips.

*Standard broach.

B CHROME STANDARD...12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
22 mm	LDHM222	31.5	34.6	31.8	50.8	17.9
24 mm	LDHM242	33.4	34.6	31.8	50.8	17.9
27 mm	LDHM272	37.3	34.6	34	54	19.9
30 mm	LDHM302	41	38.1	35.9	57.2	21.8
32 mm	LDHM322	44.2	38.1	35.9	57.2	21.8
35 mm	LDH442	49.3	41.1	36.4	58.7	21.8
36 mm	LDHM362	48.9	41.2	36.4	58.7	21.8
38 mm	LDHM382	52.1	41.2	41.4	63.5	25
41 mm	LDHM412	55.3	44.4	43.4	66.5	26.6
46 mm	LDHM462	61.6	44.4	48.8	73.2	29.5
50 mm	LDHM502	66.4	44.4	51.2	76.2	32.9
54 mm	*LDH682	74.7	44.4	57.4	82.6	36.6
55 mm	*LDHM552	72.8	44.4	63.5	82.6	36.9

413LDHM Set. "LOXOCKETS" LDHM222 through LDHM552.

413LDHMY Set. "LOXOCKETS" LDHM222 through LDHM552 on A270 Socket Rail with clips.

*Standard broach.

C CHROME DEEP...6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
27 mm	LS342	39.6	38.1	67.3	88.9	25.4
35 mm	LS442	49.3	41.1	67.3	88.9	25.4
38 mm	LS482	54	41.1	67.3	88.9	35.1

IMPACT

CAUTION: For use with impact wrenches. Always wear approved eye protection when using impact equipment.

D BLACK STANDARD...6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
17 mm	IMM172	29.5	41.1	25.4	44.5	14.2
19 mm	IM242	31.8	41.1	25.4	44.5	14.2
20 mm	IMM202	32.5	41.1	25.4	44.5	14.2
22 mm	IMM222	36.6	41.1	27.6	47.8	14.2
24 mm	IMM242	39.6	41.1	27.6	47.8	14.2
27 mm	IM342	42.9	41.1	27.6	50.8	17.5
30 mm	IM382	47.8	41.1	32.1	54	19.1
31 mm	IMM312	47.8	41.1	32.4	54	19.1
32 mm	IMM322	50.8	44.5	32.4	54	20.6
34 mm	IMM342	50.8	44.5	32.4	54	22.4
35 mm	IM442	54	44.5	34.3	57.2	22.4
36 mm	IMM362	54	44.5	34.3	57.2	22.4
38 mm	IM482	57.2	44.5	35.7	57.2	23.9
40 mm	IMM402	60.5	44.5	40.2	66.5	28.4
46 mm	IM582	69.9	44.5	40.2	66.5	27

415IMM Set. Sockets IMM172 through IM582.

415IMMY Set. Sockets IMM172 through IM582 on two A270 Socket Rails with clips.

E BLACK BOLT CLEARANCE...6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
19 mm	SIM242	31.8	41.1	57.2	76.2	14.2
24 mm	SIMM242	41.1	41.1	57.2	76.2	14.2
27 mm	SIM342	44.5	41.1	58.7	76.2	17.2
30 mm	SIM382	50.8	44.5	60.8	82.6	19.1
32 mm	SIMM322	50.8	44.5	60.8	82.6	22.4
35 mm	SIM442	54	44.5	61.9	82.6	22.4
36 mm	SIMM362	57.2	44.5	65.9	88.9	22.4
38 mm	SIM482	57.2	44.5	66.1	88.9	23.9

408SIMM Set. Sockets SIM242 through SIM482.

408SIMMY Set. Sockets SIM242 through SIM482 on A270 Socket Rail with clips.

LOCKING RING AND PINS

The following are required for tool use.

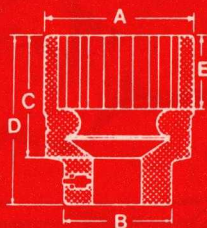
F IM182R Locking Ring. Made of synthetic rubber.

G IM182P Steel Locking Pin. Fits same unit as IM182R Ring.

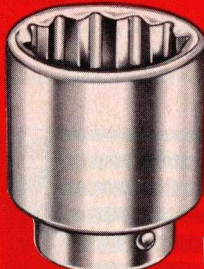
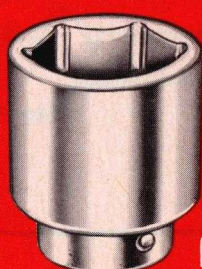
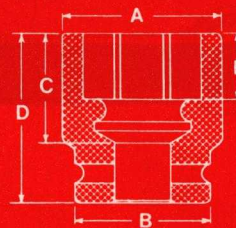
G IM182PP Reinforced Plastic Locking Pin. Fits same units as IM182R Ring.

METRIC CHROME/BLACK SOCKETS

1"



SPECIFICATIONS IN MILLIMETRES



"LOXOCKETS"

CAUTION: For hand operation only.

The chrome 1" drive units listed below feature the "LOXOCKET" attaching principle. Socket is locked onto handle which has a special locking pin and can only be released by depressing a button on the socket.

A STANDARD...6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
70 mm	L883	95.3	57.2	82.1	114.3	57.2
74 mm	L943	101.6	60.5	90.1	124	54

B STANDARD...12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
38 mm	LDH483	57.2	50.8	43.9	69.9	25.4
46 mm	LDH583	66.5	54	51.8	79.2	31.8
54 mm	*LDH683	79.2	57.2	57.4	88.9	36.6

*Standard broach.

IMPACT SOCKETS

CAUTION: These units are for use with impact wrenches. Approved eye protection should always be worn when using impact equipment.

C STANDARD...6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
19 mm	IM243	36.6	54	23.5	54	17.5
24 mm	IMM243	40.4	54	23.9	54	17.5
27 mm	IM343	44.5	54	26.9	57.2	17.5
30 mm	IM383	47.8	54	26.9	57.2	17.5
32 mm	IMM323	50.8	54	30.2	60.5	19.1
35 mm	IM443	54	54	33.9	63.5	22.4
38 mm	IM483	60.5	60.5	34.8	66.5	22.4
41 mm	IMM413	60.5	60.5	34.8	66.5	22.4
46 mm	IM583	69.9	60.5	43.2	73.2	28.4
50 mm	IMM503	69.9	60.5	43.4	73.2	28.4
52 mm	*IM663	76.2	60.5	45.4	79.2	31.2
54 mm	*IM683	82.6	60.5	52.3	82.6	31.2
60 mm	*IMM603	88.9	60.5	54.7	88.9	38.1
65 mm	*IM823	95.3	60.5	57.3	91.9	41.1
70 mm	*IM883	98.6	60.5	61.1	95.3	41.1
75 mm	*IM943	108	60.5	67.3	101.6	47.8

516IMM Set. Sockets IM243 through IM943.

*Standard broach.

D BOLT CLEARANCE...6 POINT...FLANK DRIVE

Wrench Size	Stock Number	Nom. O.D. Skt. End A	Nom. O.D. Hdl. End B	Min. Bolt Clear. Depth C	Overall Length D	Min. Broach Depth E
22 mm	SIMM223	40.4	54	46	108	15.7
24 mm	SIMM243	40.4	54	46	108	19.1
27 mm	SIM343	46	54	46	76.2	19.1
30 mm	SIM383	46	54	46	76.2	19.1
32 mm	SIMM323	52.3	54	52.3	108	22.8
35 mm	SIM443	52.3	54	52.3	82.6	22.8
38 mm	SIM483	60.5	60.5	57	88.9	25.4
46 mm	SIM583	69.9	60.5	65.1	98.6	30.2
52 mm	*SIM663	76.2	60.5	68.8	104.6	33.3
54 mm	*SIM683	82.6	60.5	71.1	111.3	33.3
65 mm	*SIM823	95.3	60.5	90.3	124	41.1
70 mm	*SIM883	98.6	60.5	92.4	130	44.5

512SIMM Set. Sockets SIMM223 through SIM883.

*Standard broach.

1" DRIVE LOCKING RINGS AND PINS

The following are required for tool use:

IM243R Ring. Fits sockets IM243 to IM443 and SIMM223 to SIM443.

IM483R Ring. Fits sockets IM483 to IM943 and SIM483 to SIM883.

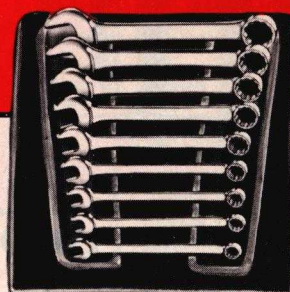
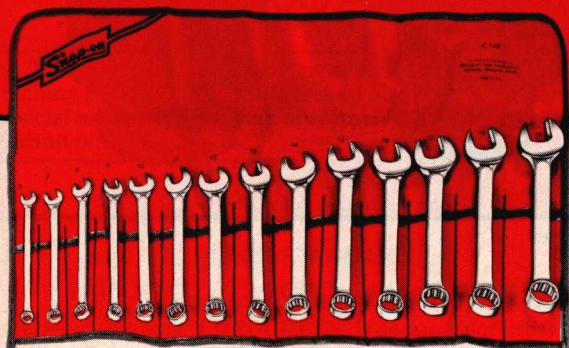
IM243P Steel Pin. Fits same units as IM243R Ring.

IM243PP Reinforced Plastic Pin. Fits same unit as IM243R Ring.

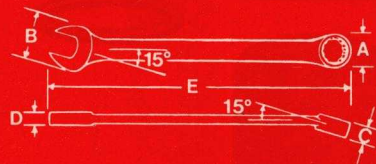
IM483P Steel Pin. Fits same units as IM483R Ring.

Wrenches

METRIC BLACK/CHROME COMBINATIONS



SPECIFICATIONS
IN MILLIMETRES



Snap-on WRENCH FEATURES

- Both ends set at 15° angles from handle to provide fast nut turning in limited areas.
- Rounded handles provide comfort.
- Proper handle lengths provide maximum leverage.
- Balanced head weights provide better control.
- "Flank Drive" results in more turning power and less wear.

A BLACK SHORT COMBINATION

12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Head Diameter		Head Depth		Overall Length E
		Box End A	Open End B	Box End C	Open End D	
6 mm	GOEXM6	9.7	13.5	4	3.2	114.4
7 mm	GOEXM7	10.7	15.1	4.4	3.6	119.6
8 mm	GOEXM8	11.9	16.7	5.9	4.4	123.4
9 mm	GOEXM9	13.2	18.3	6.4	4.8	129.7
10 mm	GOEXM10	14.5	20.8	6.8	5.2	132.7
11 mm	GOEXM11	16.2	23	7.5	5.9	136.3
12 mm	GOEXM12	17.8	24.6	7.5	5.9	139.9
13 mm	GOEXM13	18.8	27	7.9	6.4	145.5
14 mm	GOEXM14	20.5	30.2	8.3	6.8	151.6
15 mm	GOEXM15	21.6	31	8.7	7.1	155.3
16 mm	GOEXM16	22.8	33.3	8.7	7.1	160
17 mm	GOEXM17	23.8	34.9	9.1	7.5	162.3
18 mm	GOEXM18	25.3	36.9	9.1	7.5	170.6
19 mm	GOEXM19	26.9	39.7	9.7	7.9	175.4

GOEXM714 Set. Wrenches GOEXM6 through GOEXM19.
GOEXM714K Set. Wrenches GOEXM6 through GOEXM19 in C142 Kit Bag.

B CHROME SHORT COMBINATION

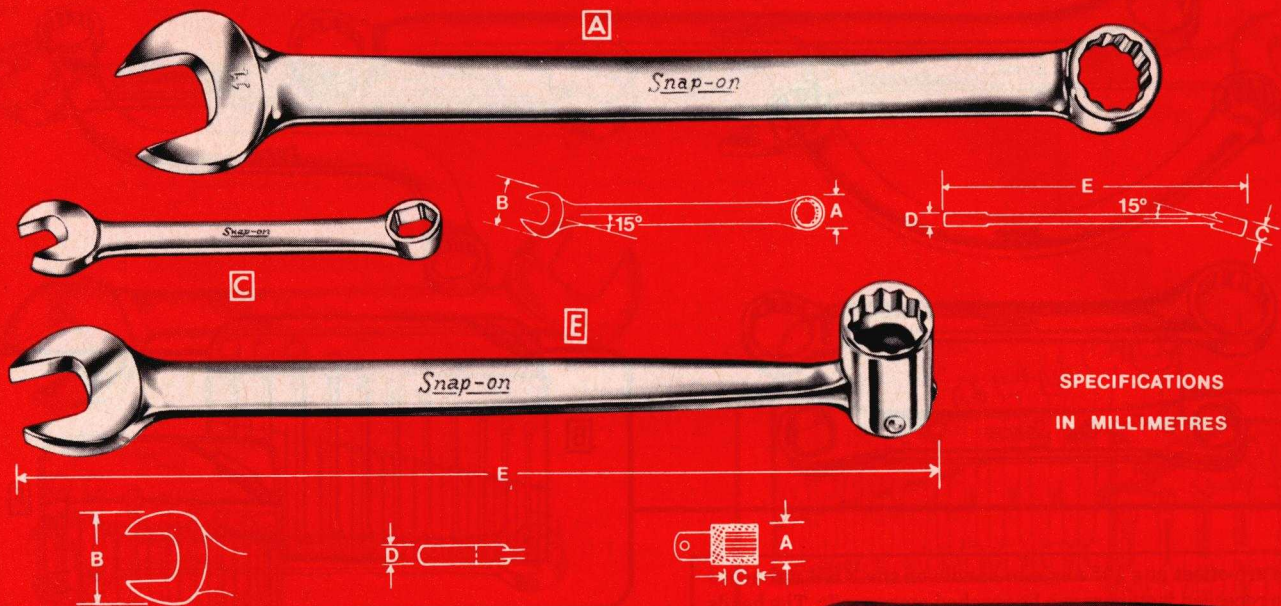
12 POINT...FLANK DRIVE

Wrench Size	Stock Number	Head Diameter		Head Depth		Overall Length E
		Box End A	Open End B	Box End C	Open End D	
6 mm	OEXM6	9.7	13.5	4	3.2	114.4
7 mm	OEXM7	10.7	15.1	4.4	3.6	119.6
8 mm	OEXM8	11.9	16.7	5.9	4.4	123.4
9 mm	OEXM9	13.2	18.3	6.4	4.8	129.7
10 mm	OEXM10	14.5	20.8	6.8	5.2	132.7
11 mm	OEXM11	16.2	23	7.5	5.9	136.3
12 mm	OEXM12	17.8	24.6	7.5	5.9	139.9
13 mm	OEXM13	18.8	27	7.9	6.4	145.5
14 mm	OEXM14	20.5	30.2	8.3	6.8	151.6
15 mm	OEXM15	21.6	31	8.7	7.1	155.3
16 mm	OEXM16	22.8	33.3	8.7	7.1	160
17 mm	OEXM17	23.8	34.9	9.1	7.5	162.3
18 mm	OEXM18	25.3	36.9	9.1	7.5	170.6
19 mm	OEXM19	26.9	39.7	9.5	7.9	175.4

CHROME SHORT COMBINATION SETS

†Drop "K" from stock number if kit bag is not desired.

Wrench Size	Wrench Stock No.	C +OEXSM714K Set	D +OEXSM709K Set	E OEXSM709 Set
6 mm	OEXM6	X	...	...
7 mm	OEXM7	X	...	...
8 mm	OEXM8	X	...	...
9 mm	OEXM9	X	...	...
10 mm	OEXM10	X	X	X
11 mm	OEXM11	X	X	X
12 mm	OEXM12	X	X	X
13 mm	OEXM13	X	X	X
14 mm	OEXM14	X	X	X
15 mm	OEXM15	X	X	X
16 mm	OEXM16	X	X	X
17 mm	OEXM17	X	X	X
18 mm	OEXM18	X	X	X
19 mm	OEXM19	X	...	...
Kit Bag		C142	C94	Plastic Tray



SPECIFICATIONS
IN MILLIMETRES

The open ends on **A** and **C** are angled at 15° from handle; box ends are offset at 15° from handle to clear obstructions.

A LONG COMBINATION FLANK DRIVE

Wrench Size	Stock No.		Head Diameter		Head Depth		Overall Length E
	6 Point	12 Point	Box End A	Open End B	Box End C	Open End D	
10 mm	OSHM100	OEXM100	14.5	20.8	7.1	5.2	168.3
11 mm	OSHM110	OEXM110	17	23.1	8.2	5.9	182.6
12 mm	OSHM120	OEXM120	18.1	25.7	8.6	6.1	187.1
13 mm	OSHM130	OEXM130	19.2	26.9	9	6.4	197.5
14 mm	OSHM140	OEXM140	21.3	30.2	9.4	6.8	210.8
15 mm	OSHM150	OEXM150	22	31.5	9.9	6.9	215.1
16 mm	OSHM160	OEXM160	23.4	33.3	10.3	7.1	225
17 mm	OSHM170	OEXM170	24.8	35.1	10.8	7.5	238.6
18 mm	OSHM180	OEXM180	24.9	37.6	10.8	7.5	242.5
19 mm	OSHM190	OEXM190	27.9	39.6	10.8	7.9	253.3
20 mm	.....	OEXM200	30.2	42.9	12.7	9.7	283.5
21 mm	.....	OEXM210	30.2	42.9	12.7	9.7	283.5
22 mm	.....	OEXM220	32.4	46	13.5	9.7	307.1
23 mm	.....	OEXM230	34.3	49.3	14.2	9.7	335.2
24 mm	.....	OEXM240	34.3	49.3	14.2	9.7	335.2
26 mm	.....	OEXM260	36.6	52.3	15.7	11.2	360.3
27 mm	.....	OEXM270	39.6	55.6	17.5	11.9	388
30 mm	.....	OEXM300	44.5	61.2	19.1	12.7	422.9
32 mm	.....	OEXM320	46.7	65	19.1	12.7	437.1

6 POINT SETS

OSHM707 Set. Wrenches OSHM100 thru 170, except OSHM160.

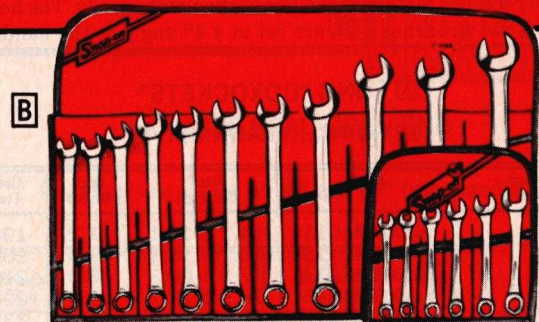
OSHM707K Set. Wrenches OSHM100 thru 170, except OSHM160 in C75B Kit Bag.

OSHM710 Set. Wrenches OSHM100 through OSHM190.

12 POINT SETS

Drop "K" from stock number if kit bag is not desired.

Wrench Size/mm	Wrench Stock No.	OEXM 719K Set	OEXM 711K Set	OEXM 707K Set	OEXM 707 Set	Wrench Size/mm	Wrench Stock No.	OEXM 719K Set	OEXM 711K Set
10	OEXM100	X	...	X	X	20	OEXM200	X	X
11	OEXM110	X	...	X	X	21	OEXM210	X	X
12	OEXM120	X	X	X	X	22	OEXM220	X	X
13	OEXM130	X	X	X	X	23	OEXM230	X	...
14	OEXM140	X	X	X	X	24	OEXM240	X	...
15	OEXM150	X	X	X	X	26	OEXM260	X	...
16	OEXM160	X	X	...	...	27	OEXM270	X	...
17	OEXM170	X	X	X	X	30	OEXM300	X	...
18	OEXM180	X	X	...	...	32	OEXM320	X	...
19	OEXM190	X	X	...	...		
...	Kit Bag	C191	C114B	C75B	Tray	...	Kit Bag	C191	C114B



C MIDGET COMBINATION 6 POINT...FLANK DRIVE

Wrench Size	Stock No.	Head Diameter		Head Depth		Overall Length E
		Box End A	Open End B	Box End C	Open End D	
5 mm	*OXIM5	8	10.4	3.8	2.8	76.4
5.5 mm	*OXIM5.5	8.6	11.9	4	3	77.6
6 mm	*OXIM6	9.7	13.5	4	3	79.2
7 mm	OXIM7	10.7	15	4.3	3.6	84.7
8 mm	OXIM8	11.6	16.8	4.8	4	90.2
9 mm	OXIM9	12.6	18.3	5.4	4.3	95.6

*Standard broach.

OXIM706 Set. Wrenches OXIM5 through OXIM9.

OXIM706K Set. Wrenches OXIM5 through OXIM9 in C65D in Kit Bag.

E FLEX-HEAD COMBINATION • 6 & 12 POINT...FLANK DRIVE

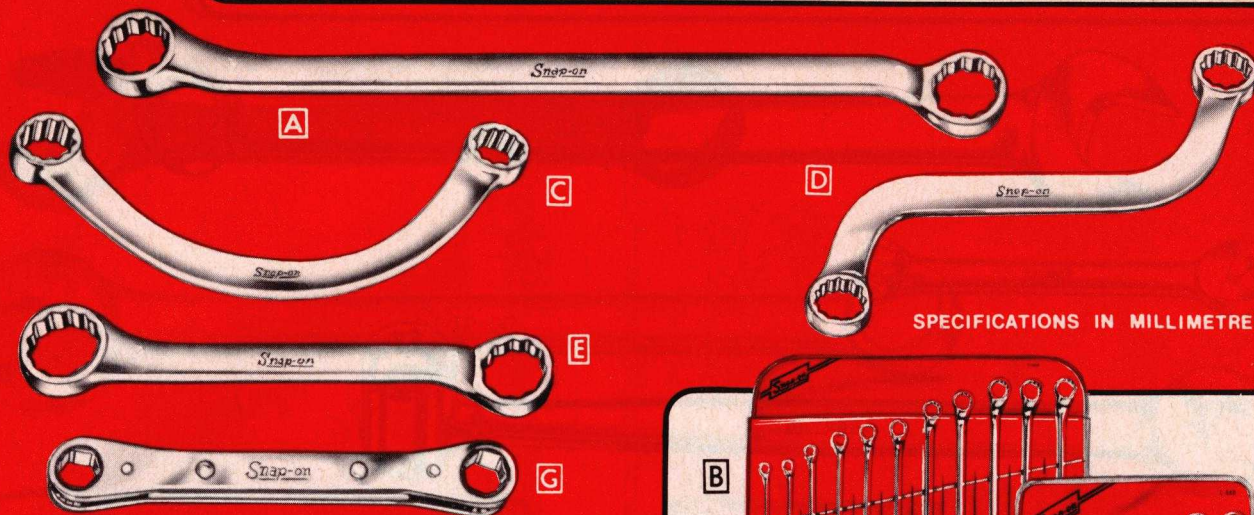
Wrench Size	Stock No.	Head Diameter		Broach Depth Box End C	Head Depth Open End D	Overall Length E
		Box End A	Open End B			
8 mm	•FHOM8S	11.5	16.8	6.4	4.8	145.5
10 mm	•FHOM10S	14.1	19.8	6.4	5.1	165.8
11 mm	•FHOM11S	15.7	23.1	7.1	5.8	180.8
12 mm	†FHOM12	17.2	26.9	8.6	6.4	197.6
13 mm	†FHOM13	18.9	26.9	8.6	6.6	204.8
14 mm	†FHOM14	19.7	30.2	8.6	6.9	213
15 mm	†FHOM15	21.3	30.7	9.7	7.1	224
17 mm	†FHOM17	24.4	36.6	10.4	7.6	245.6
19 mm	†FHOM19	26.4	39.6	12	7.9	260.9

FHOM609 Set. Wrenches FHOM8S through FHOM19.

FHOM609K Set. Wrenches FHOM8S through FHOM19 in C97 Kit Bag.

Wrenches

METRIC CHROME "BOXOCKETS"



SPECIFICATIONS IN MILLIMETRES

Heads are offset at a 10° angle to handle on the XBM wrenches (A) so recessed fasteners can be reached more easily. The heads of the XSM wrenches (C), are set at a 4° angle to the handle.

A LONG "BOXOCKETS"

12 POINT...FLANK DRIVE

Wrench Sizes	Stock No.	Head Diameters	Head Depths	Overall Length
10 & 11 mm	▲†XBM1011	14.7 & 16.1	7.2	194.8
11 & 13 mm	†XBM1113	16.1 & 18.9	7.9	208
12 & 14 mm	▲†XBM1214	17.5 & 20.3	8.4	218.9
13 & 15 mm	▲XBM1315	18.9 & 21.7	8.9	228.3
14 & 15 mm	▲†XBM1415	20.3 & 21.7	9.1	232.2
16 & 18 mm	▲†XBM1618	23.1 & 25.9	10.4	256.3
17 & 19 mm	▲†XBM1719	24.5 & 27.4	10.9	265.7
18 & 21 mm	▲XBM1821	25.9 & 30.2	11.7	278.9
19 & 22 mm	▲XBM1922	27.4 & 31.6	12.2	288.3
21 & 24 mm	XBM2124	30.2 & 34.4	13.2	318
22 & 24 mm	▲XBM2224	31.9 & 34.1	13.4	325.1
24 & 27 mm	XBM2427	34.4 & 38.6	14.7	355.6
27 & 30 mm	▲XBM2730	38.6 & 42.8	16.3	394.7
30 & 32 mm	▲XBM3032	42.8 & 45.7	17.4	426.7

XBM606Set. Six "BOXOCKETS" above marked with (†).

XBM611 Set. Eleven "BOXOCKETS" above marked with (▲).

▢ XBM611K Set. Eleven "BOXOCKETS" above marked with (▲) in C113B Kit Bag.

XBM614 Set. "BOXOCKETS" XBM1011 through XBM3032.

C HALF MOON "BOXOCKETS"

12 POINT...FLANK DRIVE

Wrench Sizes	Stock No.	Head Diameters	Head Depths	Handle Radius	Overall Length
10 & 12 mm	CXM1012	14.9 & 17.1	6.4 & 7.1	48.3	127.8
11 & 13 mm	CXM1113	16 & 18.2	7.9 & 7.9	56.6	144
14 & 17 mm	CXM1417	20.3 & 23.9	8.6 & 9.7	65	166.4
15 & 19 mm	CXM1519	22.4 & 26.9	10.4 & 11.2	77.7	197.9
18 & 21 mm	CXM1821	26.8 & 31.3	11.3 & 13.2	85.9	224.1

CXM605 Set. Half Moon "BOXOCKETS" CXM1012 through CXM1821.

D "S" SHAPE "BOXOCKETS"

12 POINT...FLANK DRIVE

Wrench Sizes	Stock No.	Head Diameters	Head Depths	Overall Length
10 & 12 mm	SBXM1012	14.9 & 17.9	6.3 & 7.5	140.4
11 & 13 mm	SBXM1113	16.4 & 19.4	6.9 & 8.2	154.6
14 & 15 mm	SBXM1415	20.8 & 22.3	8.8 & 9.4	189.7
17 & 19 mm	SBXM1719	25.3 & 28.3	10.7 & 12	239.5

E SHORT "BOXOCKETS"

● 6 & † 12 POINT...FLANK DRIVE

Wrench Sizes	Stock No.	Head Diameters	Head Depths	Overall Length
*6 & 7 mm	▲†XSM67	9.9 & 11.2	6.1 & 7.1	105.7
*6 & 7 mm	●XSM67S	9.9 & 11.2	6.1 & 7.1	105.7
8 & 9 mm	▲†XSM89	12.4 & 13.8	7.1 & 7.9	114.8
8 & 9 mm	●XSM89S	12.4 & 13.8	7.1 & 7.9	114.8
9 & 10 mm	▲†XSM910	13.8 & 15	7.9 & 8.7	122.4
10 & 11 mm	†XSM1011	14.5 & 16.4	7.9 & 8.7	123.4
11 & 12 mm	▲†XSM1112	16.4 & 17.6	8.7 & 9.7	131.3
12 & 13 mm	†XSM1213	17.6 & 19.1	9.3 & 9.8	135.9
13 & 14 mm	▲†XSM1314	18.5 & 20.3	9.7 & 10.7	140
14 & 15 mm	†XSM1415	20.3 & 21.7	10.4 & 11.2	165.8
15 & 16 mm	▲†XSM1516	21.3 & 22.9	10.7 & 11.9	171.2
17 & 19 mm	▲†XSM1719	24.1 & 26.9	12.4 & 14	190.6
18 & 20 mm	▲†XSM1820	25.1 & 26.9	12.4 & 14	192.4

*Standard broach.

XSM608 Set. All "BOXOCKETS" above marked with (▲).

▢ XSM608K Set. All "BOXOCKETS" above marked with (▲) in C80D Kit Bag.

XSM613 Set. "BOXOCKETS" XSM67 through XSM1820.

G RATCHETING "BOXOCKETS"

6 POINT...FLANK DRIVE

CAUTION: Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance.

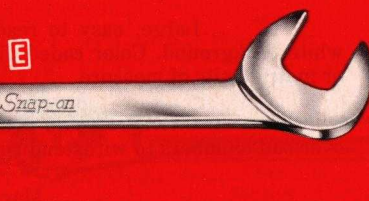
Wrench Sizes	Stock No.	Head Diameters	Head Depths	Overall Length
7 & 8 mm	RBM78S	14.3 & 15.9	8.6 & 8.6	108.7
9 & 10 mm	RBM910S	17.5 & 19.1	8.6 & 8.6	125.2
10 & 11 mm	RBM1011S	19.1 & 22.4	8.6 & 8.6	140
12 & 13 mm	RBM1213S	23.9 & 25.4	10.4 & 10.4	177
14 & 15 mm	RBM1415S	28.4 & 31.8	10.4 & 10.4	201.4
16 & 18 mm	RBM1618S	28.4 & 31.8	9.7 & 9.7	201.4
17 & 19 mm	RBM1719S	35.1 & 38.1	11.2 & 11.2	220.7

RBM604S Set. "BOXOCKETS" RBM1011S, 1213S, 1415S and 1719S in a plastic tray.

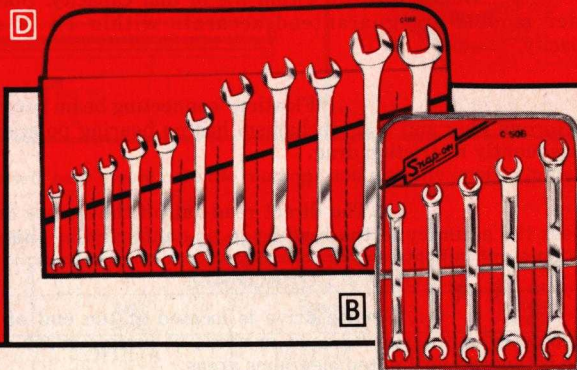
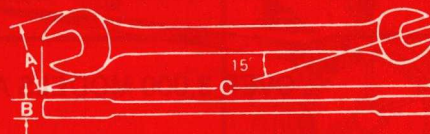
RBM607S Set. Ratcheting "BOXOCKETS" RBM78S through RBM1719S.

METRIC CHROME OPEN ENDS

Wrenches



SPECIFICATIONS IN MILLIMETRES



A FLARE NUT OPEN END
6 POINT...FLANK DRIVE

Both heads are offset at 15° to handle.

Wrench Sizes	Stock No.	Head Diameters A	Head Depths B	Overall Length C
9 & 11 mm	RXM911S	20.3 & 22.5	8.6 & 9.7	160.1
10 & 12 mm	RXM1012S	22.5 & 24.7	9.7 & 9.7	175
13 & 14 mm	RXM1314S	24.7 & 27	9.7 & 11.2	190
15 & 17 mm	RXM1517S	27 & 29.4	9.7 & 11.2	205
19 & 21 mm	RXM1921S	31.3 & 33.9	12.7 & 13.5	225.1

RXM605 Set. Wrenches RXM911S through RXM1921S in plastic tray.

B RXM605K Set. Wrenches RXM911S through RXM1921S in C50B Kit Bag.

C STANDARD OPEN END

Both openings are angled at 15° from handle.

Wrench Sizes	Stock No.	Head Diameters A	Head Depth B	Overall Length C
6 & 7 mm	•VOM67	12.7 & 14.7	3.6	95.3
7 & 8 mm	VOM78	14.7 & 16.8	4.2	104.6
8 & 10 mm	†VOM810	16.8 & 20.8	4.8	119.1
10 & 11 mm	VOM1011	20.8 & 22.9	5.2	134.9
11 & 13 mm	†VOM1113	23.1 & 26.9	5.6	149.4
12 & 14 mm	†VOM1214	25.7 & 29.5	5.8	158.8
13 & 15 mm	VOM1315	27.7 & 31.5	6.1	168.1
14 & 15 mm	†VOM1415	29.5 & 31.5	6.2	174.8
16 & 18 mm	†VOM1618	33.3 & 36.6	6.9	195.3
17 & 19 mm	†VOM1719	36.6 & 40.4	7.1	214.4
18 & 21 mm	VOM1821	37.6 & 44.5	7.5	230.1
19 & 22 mm	•VOM1922	40.4 & 46.5	7.7	242.8
21 & 24 mm	•VOM2124	44.5 & 50.3	8.5	268.2
22 & 24 mm	VOM2224	46.7 & 50.3	8.7	274.6
24 & 27 mm	VOM2427	50.3 & 56.4	9.8	304.8
27 & 30 mm	•VOM2730	56.4 & 62.5	10.7	342.9
30 & 32 mm	•VOM3032	62.5 & 66.3	11.7	373.1

VOM806 Set. Six wrenches above marked with symbol (†).

VOM806K Set. Above set in C62B Kit Bag.

VOM811 Set. Eleven wrenches above marked with symbol (•).

D VOM811K Set. Above set in C116B Kit Bag.

VOM817 Set. Wrenches VOM67 through VOM3032.

E ANGLE HEAD OPEN END

Openings are angled at 30° and 60° from handle.

Wrench Sizes	Stock No.	Head Diameter A	Head Depth B	Overall Length C
10 mm	VSM5210	19.8	5.1	132.6
11 mm	VSM5211	22.9	5.4	139.7
12 mm	VSM5212	24.6	5.6	146.8
13 mm	VSM5213	26.9	5.8	155.7
14 mm	VSM5214	29.5	6.1	162.8
15 mm	VSM5215	30.7	6.4	170.7
16 mm	VSM5216	33.5	6.6	179.3
17 mm	VSM5217	35.1	6.9	187.5
18 mm	VSM5218	36.8	7.1	195.3
19 mm	VSM5219	38.9	7.4	203.2

VSM807 Set. Includes VSM5210 through VSM5217 except VSM5216 in a plastic tray.

VSM8010 Set. Wrenches VSM5210 through VSM5219.

VSM8010K Set. Wrenches VSM5210 through VSM5219 in C107 Kit Bag.

F OPEN END & FLARE NUT
6 POINT...FLANK DRIVE

Both openings are angled at 15° from handle. Flare Nut head is offset at 15° to handle.

Wrench Size	Stock No.	Head Diameter A		Head Depth B		Overall length C
		Open End	Flare End	Open End	Flare End	
9 mm	RXSM9	20.6	20.3	8.7	8.7	141.1
10 mm	RXSM10	20.8	21.4	8.7	9.7	147.1
11 mm	RXSM11	23.9	22.5	9.7	9.9	153.4
12 mm	RXSM12	25.7	23.6	9.7	10.1	161.5
13 mm	RXSM13	27.7	24.7	9.7	10.3	169.6
14 mm	RXSM14	31	27	11.2	11.2	180.6
15 mm	RXSM15	31.5	27.6	11.2	11.2	188.9
16 mm	RXSM16	34	28.2	11.2	11.2	193.6
17 mm	RXSM17	36.6	29.7	11.9	11.9	207.8

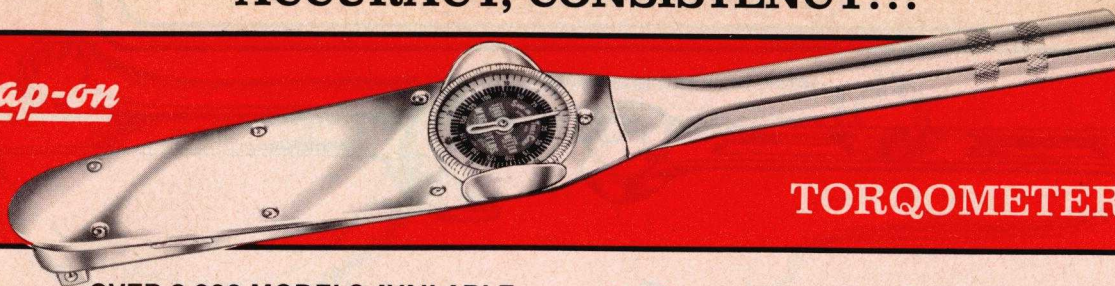
RXSM605 Set. Includes RXSM10 through RXSM14 in a tray.

RXSM609 Set. Wrenches RXSM9 through RXSM17.

RXSM609K Set. Wrenches RXSM9 through RXSM17 in C94 Kit Bag.

ACCURACY, CONSISTENCY...

Snap-on®



TORQOMETERS®

OVER 3,000 MODELS AVAILABLE.

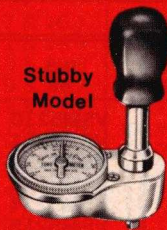
- **Accuracy**...Guaranteed to within 2% of dial capacity. Special order models are guaranteed accurate within 1% of dial capacity.
- **Friction-Free Operation**...“Floating” connecting beam between the torque plug and dial mechanism has no bearing points and consequently no friction drag.
- **Hand Hold Position**...The direct read-out off the square drive causes the accuracy of the reading to be unaffected by the way Torqometer® is held.
- **Compact Design**...Square drive is located at the end of the Torqometer® so it can be used in areas of limited reach. The nose is tapered for limited clearance areas.

- **Dial Faces**...Large, easy to read black increments against a white background. Color coded dial faces quickly identify U.S. or metric units of measure.
- **Dial Mechanism**...Protected against shock with resilient and overload members to withstand rugged use.
- **Movable Pointer and Dial**...May be pre-set to the most easily read position. All models are furnished with protective dial guards.
- **For Right or Left Hand Threads**...Dial pointer works in either direction, and the accuracy is unaffected...regardless of which way you operate the Torqometer®.
- **Special Models Available**...For those special requirements. Dual-dial types, oversize-dial types, insulated types, special dial calibrations, extra long handle extensions...whatever your needs are, your Snap-on representative can help.

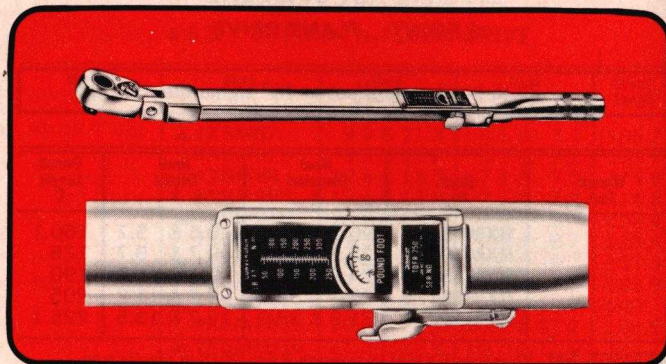
Standard Model



Stubby Model



Torque Drivers...ideal for small torque applications they allow precise control wherever screws or nuts must be tightened to exact values. Guaranteed accurate within 2% of wrench capacity. 1% accurate models available on special order. Plastic screwdriver type handles provide a firm comfortable grip. Available in either stubby or standard models in U.S. Metric/U.S. and newton metre versions.



Finger-Tip Adjustable Model...guaranteed accurate within 4% of the dial capacity in the right hand direction. 1/2" square drive with a torque range from 40 to 250 lb. ft. will handle the majority of automotive torque requirements. A locking device protects the calibration knob. A compact flexible ratcheting head allows the torque to overcome many clearance problems.

- **Dial Guards**...featured on all Snap-on Torqometers® Heat treated high strength guards protect the dial and help the Torqometer® maintain accuracy.
- **Indicator Light**...useful in areas where the dial is not visible. Available on 3/8" square drive and larger Torqometers® Set the dial to the required torque, the light signals when the proper torque is reached.
- **Follow-up Pointer**...provide quality control testing. Follow-up pointer remains at the maximum reading obtained when tension is released in either right or left hand direction. Excellent for verifying production torque applications.

CLICK-TYPE

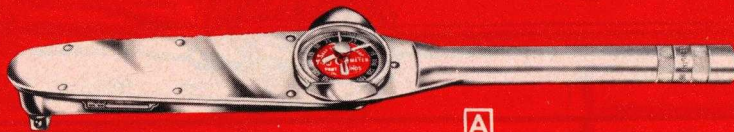
Click-Type Torque Wrenches...allow tightening of fasteners to a predetermined tension, reduce danger of broken nuts or stripped threads and provide established tolerances for assembly and inspection standards. No dial reading because selected torque is indicated with an audible click. Available in adjustable or preset models in fixed head, ratchet head and flex-head models.

CERTIFIED CALIBRATION AVAILABLE

A Certificate of Certified Calibration is available on special order when purchasing a new TORQOMETER or, you can have your present TORQOMETER certified or recertified if desired. This service is available at an additional charge. With it, your TORQOMETER will comply with military specifications, FAA requirements, nuclear requirements and various other government specifications.

U. S. & METRIC TORQOMETERS®

Torque



A



B



**Indicator Light
Models Available**



**Follow-up Pointer
Models Available**

CAUTION: Due to normal usage recalibration may periodically be necessary. This will help assure accurate readings and properly applied torque.

A & B ▲ U. S. MODELS (Precise 1% models available on special order.)

Overall Length	Capacity & Square Drive			STANDARD 2% MODELS		
	Range	Steps	Square Drive	Basic Model	Follow-up Model	Indicator Model
9 3/4"	15 lb. in.	1/4 lb. in.	1/4"	A ● TE1A	TE1FUA	—
9 3/4"	30 lb. in.	1/2 lb. in.	1/4"	A ● TE3A	TE3FUA	—
9 3/4"	75 lb. in.	1 lb. in.	1/4"	A ● TE6A	TE6FUA	—
9 3/4"	150 lb. in.	2 1/2 lb. in.	3/8"	A ● TE12A	TE12FUA	TE12LA
9 3/4"	300 lb. in.	5 lb. in.	3/8"	A ● TE25A	TE25FUA	TE25LA
12 1/2"	600 lb. in.	10 lb. in.	3/8"	A ● TE50A	TE50FUA	TE50LA
15"	600 lb. in.	10 lb. in.	1/2"	A TE51	TE51FU	TE51L
9 3/4"	12 lb. ft.	1/2 lb. ft.	3/8"	A ● TE12FA	TE12FFUA	TE12FLA
9 3/4"	25 lb. ft.	1/2 lb. in.	3/8"	A ● TE25FA	TE25FFUA	TE25FLA
12 1/2"	50 lb. ft.	1 lb. ft.	3/8"	A ● TE50FA	TE50FFUA	TE50FLA
15"	50 lb. ft.	1 lb. ft.	1/2"	A TE51F	TE51FFU	TE51FL
16"	100 lb. ft.	1 lb. ft.	1/2"	A †TE100	TE100FU	TE100L
18 3/4"	175 lb. ft.	2 1/2 lb. ft.	1/2"	A †TE175	TE175FU	TE175L
23 3/4"	250 lb. ft.	5 lb. ft.	1/2"	A TE250	TE250FU	TE250L
29 1/2"	350 lb. ft.	5 lb. ft.	3/4"	B TE352	TE352FU	TE352L
40"	600 lb. ft.	10 lb. ft.	3/4"	B TE602	TE602FU	TE602L

A & B ▲ METRIC/U. S. MODELS (Precise 1% models available on special order.)

Overall Length	Capacity & Square Drive					STANDARD 2% MODELS		
	METRIC		U. S.		Square Drive	Basic Model	Follow-up Model	Indicator Model
	Range	Steps	Range	Steps				
9 3/4"	15 kg•cm	1 kg•cm	15 lb. in.	1/2 lb. in.	1/4"	A ● TEC1A	TEC1FUA	—
9 3/4"	35 kg•cm	1 kg•cm	30 lb. in.	1 lb. in.	1/4"	A ● TEC3A	TEC3FUA	—
9 3/4"	90 kg•cm	2.5 kg•cm	75 lb. in.	1 lb. in.	1/4"	A ● TEC6A	TEC6FUA	—
9 3/4"	175 kg•cm	5 kg•cm	150 lb. in.	5 lb. in.	3/8"	A ● TEC12A	TEC12FUA	TEC12LA
9 3/4"	350 kg•cm	10 kg•cm	25 lb. ft.	1 lb. ft.	3/8"	A ● TEC25FA	TEC25FFUA	TEC25FLA
12 1/2"	700 kg•cm	20 kg•cm	600 lb. in.	20 lb. in.	3/8"	A ● TEC50A	TEC50FUA	TEC50LA
15"	700 kg•cm	20 kg•cm	600 lb. in.	20 lb. in.	1/2"	A .TEC51	TEC51FU	TEC51L
16"	14 kg•m	.5 kg•m	100 lb. ft.	2 lb. ft.	1/2"	A †TEC100	TEC100FU	TEC100L
18 3/4"	25 kg•m	1 kg•m	175 lb. ft.	5 lb. ft.	1/2"	A †TEC175	TEC175FU	TEC175L
23 3/4"	35 kg•m	1 kg•m	250 lb. ft.	10 lb. ft.	1/2"	A TEC250	TEC250FU	TEC250L
29 1/2"	50 kg•m	2 kg•m	360 lb. ft.	10 lb. ft.	3/4"	B TEC352	TEC352FU	TEC352L
40"	80 kg•m	2 kg•m	600 lb. ft.	20 lb. ft.	3/4"	B TEC602	TEC602FU	TEC602L

● Packaged in PB9 Plastic Case. † Packaged in PB3 Plastic Case.

B ▲ "HIGH CAPACITY" U. S. or METRIC/U. S. MODELS

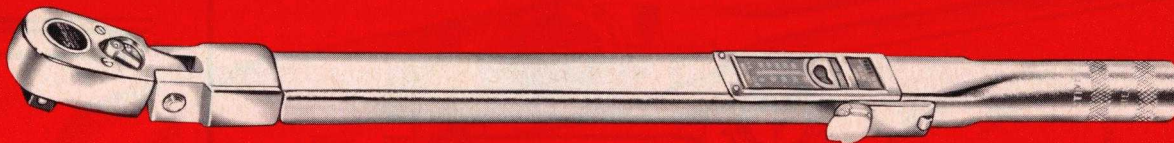
U. S. 2% MODELS

SPECS.

METRIC/U. S. 2% MODELS

U. S. ONLY		Basic Models	Follow-up Model	Indicator Model	Overall Length	Sq. Drive	METRIC		U. S.		Basic Models	Follow-up Model	Indicator Model
Range	Steps						Range	Steps	Range	Steps			
800 lb. ft.	20 lb. ft.	TE803	TE803FU	TE803L	66 1/2"	1"	110 kg•m	2 kg•m	800 lb. ft.	25 lb. ft.	TEC803	TEC803FU	TEC803L
1000 lb. ft.	20 lb. ft.	TE1003	TE1003FU	TE1003L	66 1/2"	1"	130 kg•m	2 kg•m	1000 lb. ft.	20 lb. ft.	TEC1003	TEC1003FU	TEC1003L
1500 lb. ft.	25 lb. ft.	TE1503	TE1503FU	TE1503L	80"	1"	200 kg•m	10 kg•m	1500 lb. ft.	50 lb. ft.	TEC1503	TEC1503FU	TEC1503L
2000 lb. ft.	50 lb. ft.	TE2003	TE2003FU	TE2003L	80"	1"	280 kg•m	10 kg•m	2000 lb. ft.	50 lb. ft.	TEC2003	TEC2003FU	TEC2003L
2000 lb. ft.	50 lb. ft.	TE2005	TE2005FU	TE2005L	80"	1 1/2"	280 kg•m	10 kg•m	2000 lb. ft.	50 lb. ft.	TEC2005	TEC2005FU	TEC2005L
3000 lb. ft.	50 lb. ft.	TE3005	TE3005FU	TE3005L	140"	1 1/2"	400 kg•m	10 kg•m	3000 lb. ft.	50 lb. ft.	TEC3005	TEC3005FU	TEC3005L

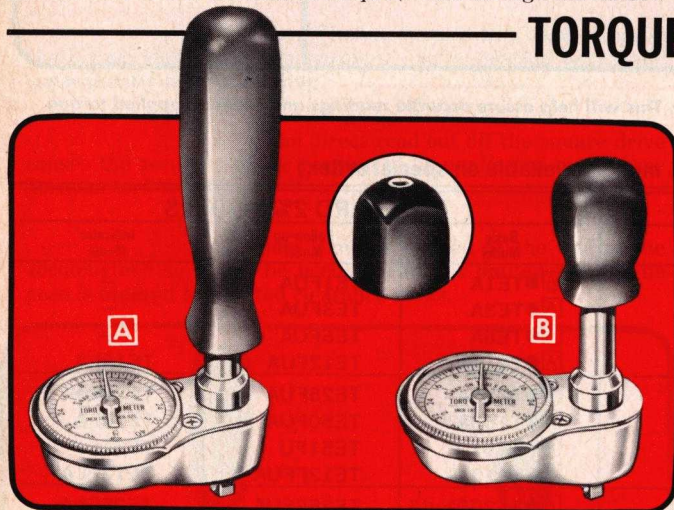
▲ Federal Spec: GGG-W-686C, type 2 style A and C applies to all items listed above.
Newton metre models shown on p. 132



TQFR250 Fingertip Adjustable Torque Wrench. Measures torque in right hand direction plus or minus 4% of dial reading. The TQFR250 is a 1/2" square drive wrench with an application range of 40 to 250 lbs. ft., in 5 lb. ft. increments. To set the desired torque, snap open the protective knob cover, rotate the adjustment micrometer knob to the desired torque (visual through the window

type indicator) and lock. Once the TQFR250 has been locked it will indicate the desired torque with an audible click and slight release. There is no need to set the wrench back to 0 when a different torque value is needed. Wrench is chrome plated and packaged in a red plastic case. Overall length is 21 1/2"

TORQUE DRIVERS



CAUTION: Due to normal usage recalibration may periodically be necessary. This will help assure accurate readings and properly applied torque.

Ideal for small torque applications, these drivers allow precise control wherever screws or nuts must be tightened to exact values. The 1/4" drive units are guaranteed accurate within 2% of wrench capacity. 1% accurate models are available on special order. Drivers with follow-up pointers which retain the peak reading are also available. The dial can be adjusted right or left. Drivers are available in either stubby (4 7/8") or standard (8 1/2") models... in U.S., metric/U.S. and newton metre versions. These drivers can be used with sockets, extensions or other attachments. Several models are available with a 1/4" female square drive atop handle to allow use of a ratchet or extension.

A STANDARD & B STUBBY U. S. TORQUE DRIVERS

A STANDARD		B STUBBY		Maximum Range	Steps
Basic Model	Follow-up Model	Basic Model	Follow-up Model		
TQS004	TQS004FU	TQSS004	TQSS004FU	8 oz. in.	1/4" oz. in.
TQS008	TQS008FU	TQSS008	TQSS008FU	16 oz. in.	1/2" oz. in.
TQS012	TQS012FU	TQSS012	TQSS012FU	24 oz. in. & 1.5 lb. in.	1/2" oz. in. & 1/32" lb. in.
TQS025	TQS025FU	TQSS025	TQSS025FU	48 oz. in. & 3 lb. in.	1 oz. in. & 1/16" lb. in.
TQS050	TQS050FU	TQSS050	TQSS050FU	96 oz. in. & 6 lb. in.	2 oz. in. & 1/8" lb. in.
TQS1	TQS1FU	TQSS1	TQSS1FU	192 oz. in. & 12 lb. in.	4 oz. in. & 1/4" lb. in.
TQS2	TQS2FU	TQSS2	TQSS2FU	384 oz. in. & 24 lb. in.	8 oz. in. & 1/2" lb. in.
TQS2.5	TQS2.5FU	TQSS2.5	TQSS2.5FU	480 oz. in. & 30 lb. in.	12 oz. in. & 3/4" lb. in.
●TQS4	●TQS4FU	●TQSS4	●TQSS4FU	50 lb. in.	2 lb. in.
●TQS6	●TQS6FU	●TQSS6	●TQSS6FU	75 lb. in.	1 lb. in.

●Models feature 1/4" female square drive atop handle.

A & B STANDARD & STUBBY METRIC/U. S. TORQUE DRIVERS

Overall Length		Capacity				A Standard Models		B Stubby Models	
		Metric		U.S.					
Standard	Stubby	Range	Steps	Range	Steps	Basic/Std.	Follow-up/Std.	Basic/Stubby	Follow-up/Stubby
8 1/2"	4 7/8"	17 kg•cm	1 kg•cm	15 lb. in.	1 lb. in.	TQSC1	TQSC1FU	TQSSC1	TQSSC1FU
8 1/2"	4 7/8"	35 kg•cm	1 kg•m	30 lb. in.	1 lb. in.	TQSC2.5	TQSC2.5FU	TQSSC2.5	TQSSC2.5FU
8 1/2"	4 7/8"	56 kg•cm	1 kg•cm	50 lb. in.	2 lb. in.	●TQSC4	●TQSC4FU	●TQSSC4	●TQSSC4FU
8 1/2"	4 7/8"	90 kg•cm	3 kg•cm	75 lb. in.	5 lb. in.	●TQSC6	●TQSC6FU	●TQSSC6	●TQSSC6FU

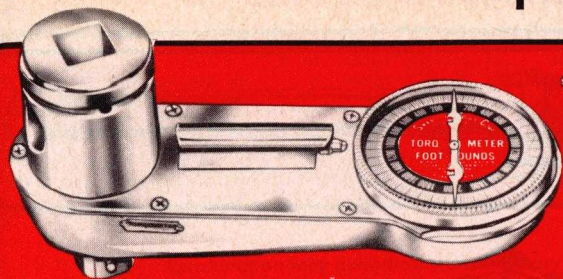
●Includes 1/4" female square drive atop handle.

A & B NEWTON METRE TORQUE DRIVERS

Overall Length		Maximum Range	Steps	A Standard Models		B Stubby Models	
				Basic/Std.	Follow-up/Std.	Basic/Stubby	Follow-up/Stubby
8 1/2"	4 7/8"	.055 N•m	.001 N•m	TQSI.055	TQSI.055FU	TQSSI.055	TQSSI.055FU
8 1/2"	4 7/8"	.11 N•m	.005 N•m	TQSI.11	TQSI.11FU	TQSSI.11	TQSSI.11FU
8 1/2"	4 7/8"	.34 N•m	.01 N•m	TQSI.34	TQSI.34FU	TQSSI.34	TQSSI.34FU
8 1/2"	4 7/8"	.70 N•m	.02 N•m	TQSI.70	TQSI.70FU	TQSSI.70	TQSSI.70FU
8 1/2"	4 7/8"	1.35 N•m	.05 N•m	TQSI1.35	TQSI1.35FU	TQSSI1.35	TQSSI1.35FU

"T" HANDLE, X4'S

Torque



"T" Handles and Extension Handles are optional.

B



CAUTION: Due to normal usage recalibration may periodically be necessary. This will help assure accurate readings and properly applied torque.

A T-HANDLE TORQOMETERS® – U. S. or METRIC/U. S.

U. S. MODELS (2% Accuracy)				SPECIFICATIONS			METRIC/U. S. MODELS (2% Accuracy)					
Range	Steps	Follow-up Model	Indicator Model	Length	Female Sq.	Male Sq.	METRIC		U. S.		Follow-up Model	Indicator Model
							Range	Steps	Range	Steps		
600 lb. ft.	10 lb. ft.	TEX602TFU	TEX602TL	9"	3/4"	3/4"	80 kg•m	2 kg•m	600 lb. ft.	20 lb. ft.	TEXC602TFU	TEXC602TL
800 lb. ft.	20 lb. ft.	TEX803TFU	TEX803TL	9"	3/4"	1"	110 kg•m	2 kg•m	800 lb. ft.	25 lb. ft.	TEXC803TFU	TEXC803TL
1000 lb. ft.	20 lb. ft.	TEX1003TFU	TEX1003TL	10"	3/4"	1"	130 kg•m	2 kg•m	1000 lb. ft.	20 lb. ft.	TEXC1003TFU	TEXC1003TL
1500 lb. ft.	25 lb. ft.	TEX1503TFU	TEX1503TL	11"	1"	1"	200 kg•m	5 kg•m	1500 lb. ft.	50 lb. ft.	TEXC1503TFU	TEXC1503TL
2000 lb. ft.	50 lb. ft.	TEX2003TFU	TEX2003TL	11"	1"	1"	280 kg•m	10 kg•m	2000 lb. ft.	100 lb. ft.	TEXC2003TFU	TEXC2003TL
2000 lb. ft.	50 lb. ft.	TEX2005TFU	TEX2005TL	11"	1"	1 1/2"	280 kg•m	10 kg•m	2000 lb. ft.	100 lb. ft.	TEXC2005TFU	TEXC2005TL
3000 lb. ft.	50 lb. ft.	TEX3005TFU	TEX3005TL	12"	1 1/2"	1 1/2"	400 kg•m	10 kg•m	3000 lb. ft.	100 lb. ft.	TEXC3005TFU	TEXC3005TL
4000 lb. ft.	50 lb. ft.	TEX4005TFU	TEX4005TL	12"	1 1/2"	1 1/2"	550 kg•m	10 kg•m	4000 lb. ft.	50 lb. ft.	TEXC4005TFU	TEXC4005TL

B OPTIONAL "T" BARS & EXTENSION HANDLES

TORQOMETER® Model Number	BASIC "T" BAR		EXTENSION HANDLE	
	Part No.	Length	Part No.	Length
602	79TQP	45"	—	—
803	80TQP	60"	—	—
1003	81TQP	66"	—	—
1503	82TQP	18"	85TQP	31"
2003	82TQP	18"	85TQP	31"
2005	82TQP	18"	85TQP	31"
3005	83TQP	18"	87TQP	66"
4005	84TQP	20"	89TQP	72"

X4 GEARED HEAD WRENCH MULTIPLIERS

CAUTION: The X4 handle serves as a "reaction bar" and must be placed against the floor or other nearby, sufficiently-strong fixed object.

Up to three X4's may be used at one time to multiply torque. Applied turning force is a steady pressure resulting in longer fastener life. GA190 features an anti-backlash, bi-directional ratchet mechanism and may be coupled with X4 models GA186, GA187 or GA189. Only T-Handle TORQOMETERS® are recommended for use with the X4's.

Stock No.	Female Sq. Dr.	Male Sq. Dr.	Rated Capacity	Ratio	Handle Length
C GA184A	1/2"	3/4"	1,000 lb. ft.	4:1	18"
D GA185	3/4"	1"	2,000 lb. ft.	4:1	22"
E GA186	1"	1 1/2"	4,000 lb. ft.	4.33:1	25 1/4"
GA187	1"	1 1/2"	8,000 lb. ft.	4.6:1	24"
GA189	1"	2 1/2"	12,000 lb. ft.	6:1	30"
F †GA190	3/4"	1"	2,000 lb. ft.	4:1	26 1/2"
G GA191	3/4"	1 1/2"	3,000 lb. ft.	14.3:1	31"

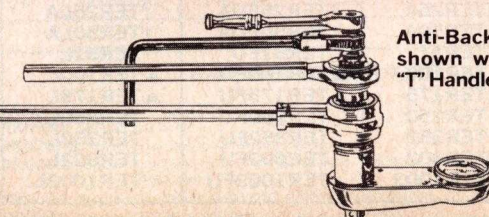
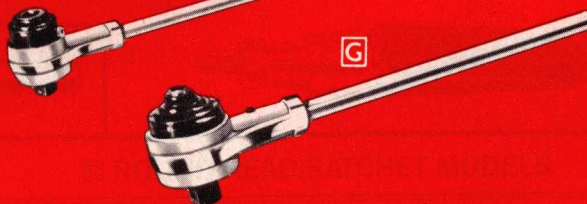
•Available on special order only. †Anti-backlash.

ANTI-BACKLASH RATCHET AND ADAPTOR

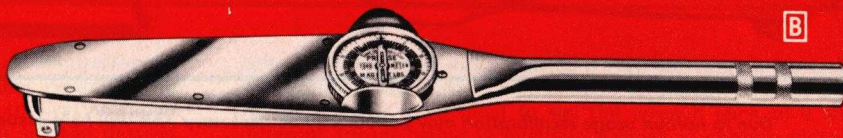
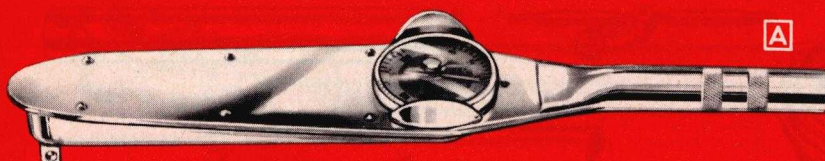
H N7150A Anti-Backlash Ratchet. Maintains multiplied torque of X4's while preventing backlash. 90° bent handle end braces firmly against X4 handle. Double hex, 15 1/2" long. N7151A Square Drive Adaptor required for use.

J N7151A Square Drive Adaptor. Designed for use with N7150A, 1/2" male engages 1/2" female opening atop X4. Adapts only to GA184A 1/2" female opening. Locking ring securely holds in place. Outside hex diameter 7/8".

Shown with "T" Handle TORQOMETER®



Anti-Backlash Ratchet shown with X4's and "T" Handle Torqometer.



CAUTION: Due to normal usage recalibration may periodically be necessary. This will help assure accurate readings and properly applied torque.

A NEWTON METRE TORQOMETERS®

- **Accuracy...** "TESI" series is guaranteed to within 2% of the full range of the dial.
- **Chrome Finish...** Adds to the beauty of the tool and allows easy clean-up.
- **Dial Faces...** Feature an aluminum finish, a blue center area and easy to read black graduations.
- **Variety of Sizes...** "TESI" Torqometers® are available in square drive sizes 1/4" thru 1 1/2"
- **Special Models Available...** All models are available with follow-up pointer and light indicator.

B NEWTON METRE/U. S. TORQOMETERS®

- **Accuracy...** "TER" series is guaranteed to within 1% of the full range of the dial.
- **Chrome Finish...** adds to the tools appearance and aids in fast clean-up.
- **Combination Dial...** "TER" models suit both metric and U. S. fasteners... giving you two Torqometers® for the price of one.
- **Variety of Drive sizes...** "TER" Torqometers® are available in square drive sizes 1/4" thru 1"
- **Special Models Available...** All models are available with follow-up pointer and light indicator.

A NEWTON METRE TORQOMETERS®

Square Drive	Standard 2% Models			Capacity		Overall Length
	Basic Model	Follow-up Model	Light Indicator Model	Maximum Range	Steps	
1/4"	TESI5	TESI5FU	TESI5L	5 N•m	.2 N•m	10"
1/4"	TESI10	TESI10FU	TESI10L	10 N•m	.5 N•m	10"
3/8"	TESI20	TESI20FU	TESI20F	20 N•m	.5 N•m	10"
3/8"	TESI30	TESI30FU	TESI30L	30 N•m	1 N•m	10"
3/8"	TESI60	TESI60FU	TESI60L	60 N•m	2 N•m	12 1/2"
3/8"	TESI70	TESI70FU	TESI70L	70 N•m	2 N•m	12 1/2"
3/8"	TESI75	TESI75FU	TESI75L	75 N•m	1 N•m	12 1/2"
1/2"	TESI125	TESI125FU	TESI125L	125 N•m	5 N•m	18 3/4"
1/2"	TESI200	TESI200FU	TESI200L	200 N•m	5 N•m	15"
1/2"	TESI250	TESI250FU	TESI250L	250 N•m	5 N•m	18 3/4"
1/2"	TESI500	TESI500FU	TESI500L	500 N•m	10 N•m	29 1/2"
3/4"	TESI800	TESI800FU	TESI800L	800 N•m	20 N•m	40"
1"	TESI1360	TESI1360FU	TESI1360L	1360 N•m	20 N•m	66 1/2"
1"	TESI2803	TESI2803FU	TESI2803L	2800 N•m	50 N•m	80"
1 1/2"	TESI2805	TESI2805FU	TESI2805L	2800 N•m	50 N•m	80"
1 1/2"	TESI4000	TESI4000FU	TESI4000L	4000 N•m	100 N•m	140"

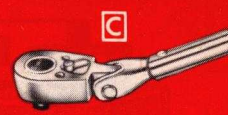
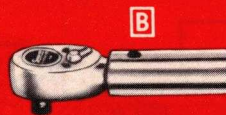
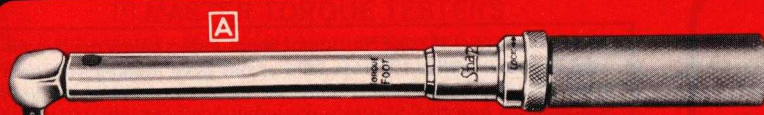
B NEWTON METRE & U. S. COMBINATION DIAL TORQOMETERS®

Square Drive	Fed. Spec. GGG-W-686-C Type 2 Style A and C			Maximum Range		Dial Divisions		Overall Length
	Basic Model	Follow-up Model	Light Indicator Model	Newton	English	Newton	English	
1/4"	†TER1A	†TER1FUA	†TER1LA	1.7 N•m	15 lb. in.	.05 N•m	1/2 lb. in.	9 3/4"
1/4"	†TER3A	†TER3FUA	†TER3LA	3.5 N•m	30 lb. in.	.1 N•m	1 lb. in.	9 3/4"
1/4"	†TER6A	†TER6FUA	†TER6LA	840 N•cm	75 lb. in.	20 N•cm	1 lb. in.	9 3/4"
3/8"	†TER12A	†TER12FUA	†TER12LA	1700 N•cm	150 lb. in.	50 N•cm	5 lb. in.	9 3/4"
3/8"	†TER25A	†TER25FUA	†TER25LA	3200 N•cm	300 lb. in.	50 N•cm	10 lb. in.	9 3/4"
3/8"	†TER50A	†TER50FUA	†TER50LA	6000 N•cm	600 lb. in.	100 N•cm	20 lb. in.	12 1/2"
1/2"	TER51	TER51FU	TER51L	6000 N•cm	600 lb. ft.	100 N•cm	20 lb. in.	14 3/4"
1/2"	▲TER100	▲TER100FU	▲TER100L	140 N•m	100 lb. ft.	5 N•m	2 lb. ft.	15 1/2"
1/2"	▲TER175	▲TER175FU	▲TER175L	230 N•m	175 lb. ft.	10 N•m	5 lb. ft.	18 3/4"
1/2"	TER250	TER250FU	TER250L	340 N•m	250 lb. ft.	10 N•m	10 lb. ft.	23 3/4"
3/4"	TER352	TER352FU	TER352L	480 N•m	350 lb. ft.	10 N•m	5 lb. ft.	●29 1/2"
3/4"	TER602	TER602FU	TER602L	800 N•m	600 lb. ft.	20 N•m	10 lb. ft.	●40"
1"	TER1003	TER1003FU	TER1003L	1360 N•m	1000 lb. ft.	20 N•m	20 lb. ft.	●66 1/2"

†Packaged in PB9 Plastic Case. ▲Packaged in PB3 Plastic Case. ●Includes two-piece handles.

CLICK-TYPE WRENCHES

Torque



CAUTION: Recalibration may periodically be necessary with normal use. This will help assure accurate readings and properly applied torque. Ratchet mechanism should be cleaned and lubricated periodically with light grade oil to help ensure safe performance. Do not exceed torque capacity of wrench.

Feature micrometer-type adjustment to any torque value within their range. Torque is indicated mechanically by an audible sound or "click" and a release of tension, followed by several degrees of free movement. This is especially important in areas where a dial cannot

be seen. Ruggedly built, they are also light in weight and well balanced. Compact heads permit use in tight working quarters. Shanks and heads are chrome plated. U.S. models have silver-colored handle grips; metric models have blue handle grips.

U. S. ADJUSTABLE MODELS

Square Drive	A Fixed Head Model	B Ratchet Head Model	C Flex-head Model	Capacity		Divisions	Approximate Length
				Minimum	Maximum		
▲ 1/4"	●QJ117B	QJR117B	....	30 lb. in.	200 lb. in.	1 lb. in.	9 1/2"
3/8"	●QJ217B	●QJR217B	....	30 lb. in.	200 lb. in.	1 lb. in.	9 1/2"
▲ 3/8"	††QJ284B	††QJR284C	....	150 lb. in.	1000 lb. in.	5 lb. in.	14 1/2"
3/8"	....	....	††QJFR275C	5 lb. ft.	75 lb. ft.	1/2 lb. ft.	11 13/16"
▲ 3/8"	††QJ2100B	††QJR2100C	....	15 lb. ft.	100 lb. ft.	1/2 lb. ft.	14 1/2"
▲ 1/2"	....	†QJR3200B	....	30 lb. ft.	200 lb. ft.	1 lb. ft.	20 23/32"
▲ 1/2"	†QJ3209B	†QJR3209B	....	300 lb. in.	2500 lb. in.	10 lb. ft.	20 23/32"
1/2"	QJ3250	....	....	30 lb. ft.	250 lb. ft.	1 lb. ft.	19 29/32"
3/4"	....	●●QJR4400	....	50 lb. ft.	400 lb. ft.	2 1/2 lb. ft.	36"
▲ 3/4"	●●QJ4600A	●●QJR4600A	....	100 lb. ft.	600 lb. ft.	2 1/2 lb. ft.	39 3/4"

(▲ Federal Specification GGG-W-686C apply.)

METRIC ADJUSTABLE MODELS

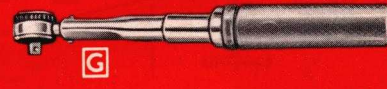
1/4"	....	●QJMR12A	....	30 kg•cm	200 kg•cm	1 kg•cm	9 1/2"
3/8"	....	††QJMR22A	....	30 kg•cm	200 kg•cm	1 kg•cm	9 1/2"
3/8"	....	††QJMR210B	....	150 kg•cm	1000 kg•cm	5 kg•cm	14 3/4"
3/8"	....	....	....	5 N•m	65 N•m	5 N•m	14 3/4"
3/8"	....	††QJRM65A	....	25 N•m	125 N•m	5 N•m	14 3/4"
1/2"	....	†QJRM125A	....	5 kg•m	30 kg•m	1 kg•m	21 3/16"
1/2"	....	†QJRM330A	....	30 N•m	250 N•m	1 N•m	21 3/16"
1/2"	....	†QJRM250	....	15 kg•m	85 kg•m	.5 kg•m	39 3/4"
3/4"	●●QJM480	....	....	75 N•m	500 N•m	2.5 N•m	40 1/8"
3/4"	....	●●QJRM500	....	150 N•m	800 N•m	2.5 N•m	40 1/8"
3/4"	....	●●QJRM800	....	....	....	....	....

†Packaged in PB5 Case.

††Packaged in PB6 Case.

•Packaged in PB15 Case.

●●Packaged in PB23 Case.



PRE-SET MODELS

Ideal for assembly line applications where bolts are constantly torqued to the same tension. Wrenches can be reset at a different torque value or adjusted for accuracy by means of a hex head wrench and a torque wrench tester, such as shown on page 134.

Square Drive	Stock No.	Head Style	Capacity		Approximate Length
			Minimum	Maximum	
□ 1/4"	QP117	Fixed	30 lb. in.	200 lb. in.	7 1/2"
□ 1/4"	QPR117	Ratchet	30 lb. in.	200 lb. in.	9 1/2"
□ 3/8"	QPR217	Ratchet	30 lb. in.	200 lb. in.	9 1/2"
□ 3/8"	QP2100A	Fixed	15 lb. ft.	100 lb. ft.	12 5/8"
□ 3/8"	QPR2100B	Ratchet	15 lb. ft.	100 lb. ft.	14 1/2"

F LONG HANDLE PRE-SET MODEL

For clearance, extension handle can be shortened without affecting torque readings.

1/2"	TQP250	Fixed	50 lb. ft.	250 lb. ft.	33 1/2"
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●●Packaged in PB23 Case.

†Packaged in PB5 Case.

•Packaged in PB15 Case.

G ROUND HEAD RATCHET MODELS

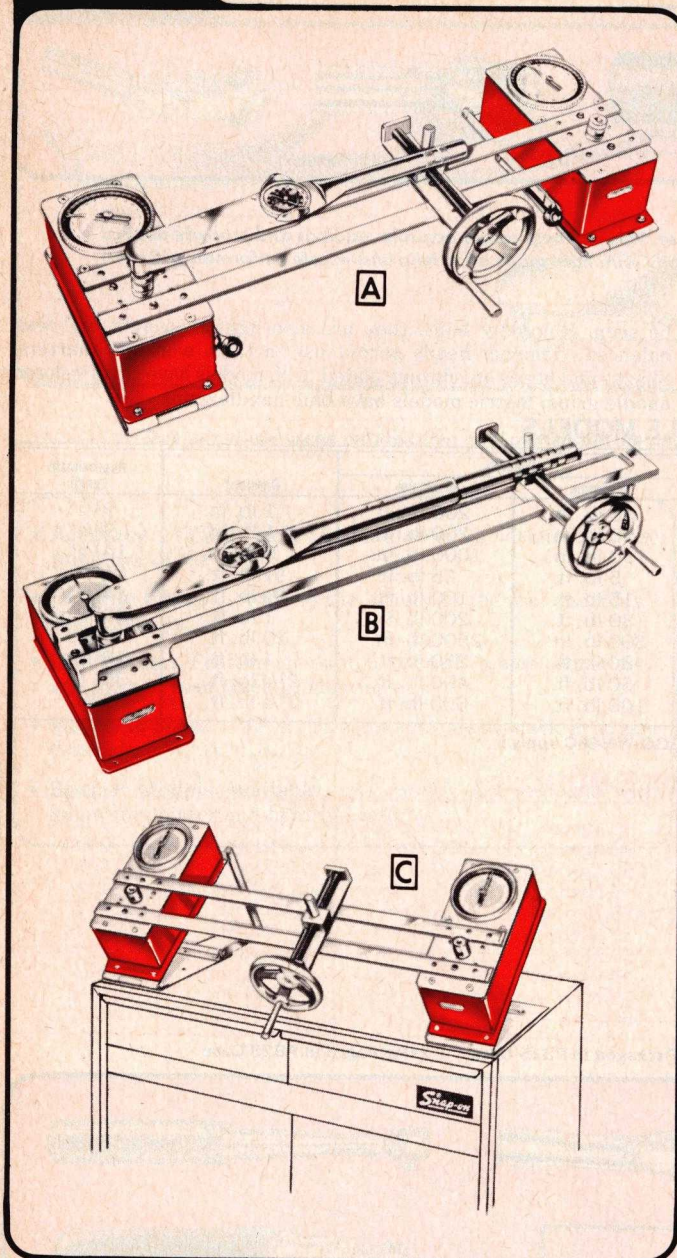
Square Drive	Stock No.	Capacity		Approximate Length
		Minimum	Maximum	
● 1/4"	QJR104A	5 lb. in.	50 lb. in.	7 1/2"
● 1/2"	QJR3250	30 lb. ft.	250 lb. ft.	20 23/32"

H TORQUE SCREWDRIVER

Square Drive	Stock No.	Capacity		Divisions	Approx. Length
		Minimum	Maximum		
1/4"	QTS130	6 lb. in.	30 lb. in.	1/2 lb. in.	7 1/2"

RATCHET REPAIR KITS

RKQJ1. Repairs: QJR117B, QPR117
 RKR930. Repairs: QJMR12A
 RKR70FM. Repairs: QJR217B, QJMR22A, QPR217
 RKQJ2B. Repairs: QJR284C, QJR2100C, QJMR210B, QJRM65A, QJRM125A, QJFR275C, QPR2100B
 RKQJ3A. Repairs: QJR3200B, QJR3209B, QJMR330A, QJRM250
 RKR980. Repairs: QJR4400, QJR4600, QJRM500, QJRM800

**A DUAL BENCH TESTERS**

Dual bench model testers have hinged bases which allow horizontal, angular or vertical test positions. The vertical position is ideal for checking the accuracy of the tester with a dead weight test bar. Dual models also share the characteristics of the single unit horizontal testers. The TQTP216 is 30" wide; TQTP650 is 46" wide. Housings are 11" long, 5" wide and 5¹/₁₆" deep. These units will handle all popular torque wrenches and SNAP-ON "Torqometers" except "T" handle models.

SINGLE AND COMBINATION DIAL MODELS

Model No.	Capacity		Steps		Square Dr. Adaptors (Inc.)
	Right Side	Left Side	Right Side	Left Side	
•TQTP216	200 lb. ft.	200 lb. in.	1 lb. ft.	1 lb. in.	1/4", 3/8", 1/2"
†TQTP650	600 lb. ft.	600 lb. in.	5 lb. ft.	5 lb. in.	3/8", 1/2", 3/4"
•TQTPC216	200 lb. ft. 27 kg•m	200 lb. in. 225 kg•cm	2 lb. ft. .25 kg•m	2 lb. in. 1 kg•cm	1/4", 3/8", 1/2"
†TQTPC650	600 lb. ft. 80 kg•m	600 lb. in. 7 kg•m	10 lb. ft. 1 kg•m	20 lb. in. .2 kg•m	3/8", 1/2", 3/4"
•TQTPR216	200 lb. ft. 270 N•m	200 lb. in. 22 N•m	2 lb. ft. 5 N•m	2 lb. in. .5 N•m	1/4", 3/8", 1/2"

Both Upright (p. 135) and Horizontal Bench Testers below are guaranteed accurate within 1% from 20% of full scale reading...in both right and left hand applications. All testers accommodate both Torqometer® and Click-Type torque wrenches. Recalibration of testers may periodically be necessary with normal use. This will help assure accurate readings and properly applied torque.

B HORIZONTAL BENCH TESTERS

Includes square drive adaptors for testing all popular torque wrenches and SNAP-ON "Torqometers," except 3/4" square drive click-type torque wrenches and "T" handle "Torqometers." Designed for virtually all types of operations. Each tester is completely portable. The 4 1/2" diameter dial has a 7" linear equivalent and follow-up pointer that retains the reading for a detailed analysis; a one inch radius drum converts testers for wire break testings. Testers are ideal for clockwise and counter-clockwise applications and are guaranteed accurate within 1% from 20% of full scale reading. Loading bar slides for best loading position. Easily mounted on work benches, table or roll cabs.

SINGLE DIAL MODELS

Model No.	Capacity	Steps	Square Dr. Adaptors (Inc.)
•TQTP16	200 lb. in.	1 lb. in.	1/4", 3/8", 1/2"
•TQTP25	300 lb. in.	2 lb. in.	1/4", 3/8", 1/2"
•TQTP50	600 lb. in.	5 lb. in.	1/4", 3/8", 1/2"
•TQTP101	1200 lb. in.	5 lb. in.	3/8", 1/2"
•TQTP200	200 lb. ft.	1 lb. ft.	3/8", 1/2"
†TQTP300	300 lb. ft.	2 lb. ft.	1/2", 3/4"
†TQTP500	500 lb. ft.	2 lb. ft.	1/2", 3/4"
†TQTP600	600 lb. ft.	5 lb. ft.	1/2", 3/4"

COMBINATION DIAL MODELS

Model No.	Capacity	Steps	Square Dr. Adaptors (Inc.)
•TQTPC16	200 lb. in. 225 kg•cm	2 lb. in. 1 kg•cm	1/4", 3/8", 1/2"
•TQTPC50	600 lb. in. 7 kg•m	20 lb. in. .2 kg•m	1/4", 3/8", 1/2"
•TQTPC200	200 lb. ft. 27 kg•m	2 lb. ft. .25 kg•m	3/8", 1/2"
†TQTPC600	600 lb. ft. 80 kg•m	10 lb. ft. 1 kg•m	1/2", 3/4"
•TQTPR16	200 lb. in. 22 N•m	2 lb. in. .5 N•m	1/4", 3/8", 1/2"
•TQTPR200	200 lb. ft. 270 N•m	2 lb. ft. 5 N•m	3/8", 1/2"
†TQTPR600	600 lb. ft. 800 N•m	10 lb. ft. 10 N•m	1/2", 3/4"

C MOUNTED TESTERS

Dual-bench model testers can be mounted on SNAP-ON Roll-Cabs to provide mobility for your torque wrench testing operation. The TQTP216 can be mounted on the KR460B Cab, which measures 32" wide x 20 7/8" x 37 1/2". The 48" wide KR465A holds the TQTP650 Tester. See below for ordering complete unit.

TQTP216B Tester. Includes TQTP216 Tester with KR460B Roll-Cab on page 266.

TQTP650B Tester. Includes TQTP650 Tester with KR465A Roll-Cab on page 266.

•Tester accuracy may be quickly verified using TTB250 Dead Weight Test Bar (p. 135)
†Tester accuracy may be quickly verified using TTB500 Dead Weight Test Bar (p. 135)

A MASTER TORQUE TESTERS

Check the accuracy of any style torque wrench. Accuracy is guaranteed within plus or minus 1/10th of 1%. Ideal for clockwise or counterclockwise applications and for fracture tests. Three scale ranges are featured: pounds-inch, pounds-foot and newton metre. TTB250 and TTB1000 (below), required for calibration, are included with each unit.

The **TTR1000** model has an amplified optical scale which offers read-out equivalent to 12 linear feet. Ground glass screen offers no parallax error.

The **TTR1000DI** (pictured at right) features an accessory digital indicator utilizing light emitting diodes which may be used in conjunction with the standard optical scale.

Model No.	Capacity	Steps	Dimensions		
			Height	Width	Depth
TTR1000	0-1000 lb. in.	1 lb. in.	65"	35"	33"
	0-1000 lb. ft.	1 lb. ft.			
	0-1000 N•m	1 N•m			
TTR1000DI	0-100 lb. in.	.1 lb. in.	65"	35"	33"
	0-1000 lb. ft.	.1 lb. ft.			
	0-1000 N•m	1 N•m			

B UPRIGHT BENCH TESTERS NEWTON-ENGLISH COMBINATION DIAL MODELS

Model No.	Capacity	Steps	Square Drive
TTUR050	100 oz. in. .7 N•m	1 oz. in. .01 N•m	1/4"
TTUR1	240 oz. in. 1.7 N•m	4 oz. in. .25 N•m	1/4"
TTUR3	30 lb. in. 3.4 N•m	.5 lb. in. .05 N•m	1/4"
TTUR6	75 lb. in. 8.4 N•m	1 lb. in. .1 N•m	1/4"
TTUR12	150 lb. in. 16.8 N•m	1 lb. in. .1 N•m	3/8"
TTUR16	200 lb. in. 25 N•m	2 lb. in. .5 N•m	3/8"
TTUR25	300 lb. in. 34 N•m	5 lb. in. .5 N•m	3/8"
TTUR50	50 lb. ft. 66 N•m	.5 lb. ft. 1 N•m	3/8"

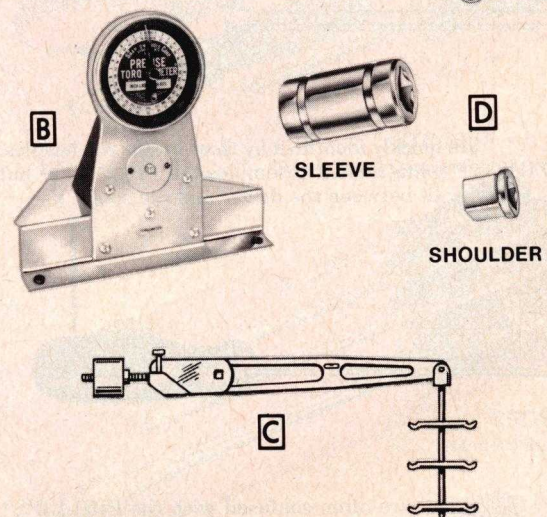
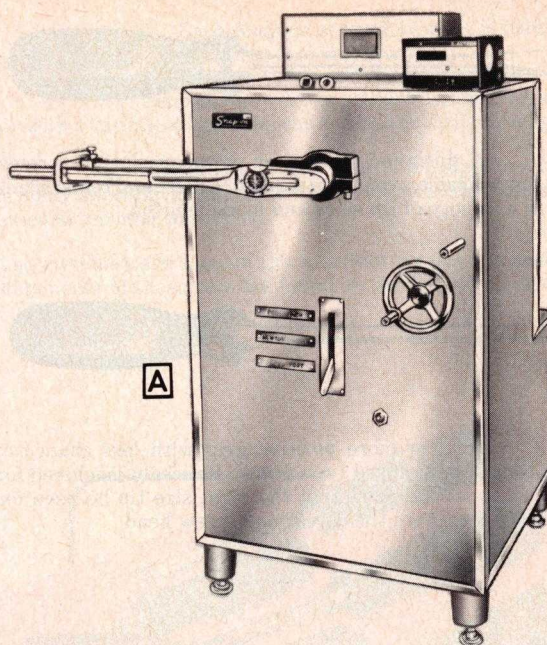
METRIC-ENGLISH COMBINATION DIAL MODELS

Model No.	Capacity	Steps	Square Drive
TTUC3	30 lb. in. 35 kg•cm	1 lb. in. 1 kg•cm	1/4"
TTUC12	150 lb. in. 175 kg•cm	5 lb. in. 5 kg•cm	3/8"
TTUC16	200 lb. in. 225 kg•cm	2 lb. in. 1 kg•cm	3/8"
TTUC25	300 lb. in. 340 kg•cm	10 lb. in. 10 kg•cm	3/8"
TTUC50	600 lb. in. 7 kg•m	20 lb. in. .2 kg•m	3/8"

C DEAD WEIGHT TEST BARS

Verify accuracy of Dual Bench (p. 134) or Master Floor models (above). Bar includes adjustable counterweight on left side, level indicator, hanger segments and instrument bearing hanger. Certified test weights are not included.

Model No.	Test Capacity	Lever Lgth.	Drive Size	Model No.	Test Capacity	Lever Lgth.	Drive Size
TTB6	25 lb. ft.	12"	3/8"	TTB1000	1000 lb. ft.	48"	1"
TTB250	250 lb. ft.	36"	1/2"	TTB2000	2000 lb. ft.	48"	1 1/2"
TTB500	500 lb. ft.	36"	3/4"	TTB5000	5000 lb. ft.	72"	1 1/2"

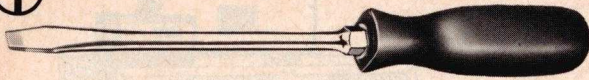


D SQUARE DRIVE ADAPTORS

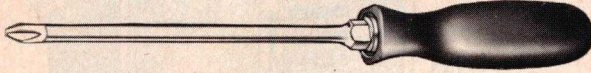
The "TQN Series" Square Drive Adaptors are designed for use with the SNAP-ON line of Horizontal Bench Model Torque Testers (p. 134). Two types of adaptors are available: the shoulder type which features a female square drive on one end and a male square drive on the other, and the larger sleeve type which has a female square drive at both ends.

Adaptor No.	Type	Size	Models used on:
TQN130	Shoulder	1/2" m-1/4" f	TQTP16, TQTP25, TQTP50, TQTP216
TQN131	Shoulder	1/2" m-3/8" f	TQTP16, TQTP25, TQTP50, TQTP101, TQTP200, TQTP216
TQN132	Sleeve	1/2" f-1/2" f	TQTP16, TQTP200, TQTP216
TQN133	Sleeve	3/4" f-3/4" f	TQTP300, TQTP500, TQTP600, TQTP650
TQN134	Shoulder	3/4" m-1/2" f	TQTP300, TQTP500, TQTP600, TQTP650
TQN135	Shoulder	3/4" m-3/8" f	Available on Special Order
TQN139	Sleeve	1/4" f-1/4" f	Available on Special Order
TQN260	Sleeve	3/8" f-3/8" f	Available on Special Order
TQN261	Shoulder	3/8" m-1/4" f	Available on Special Order

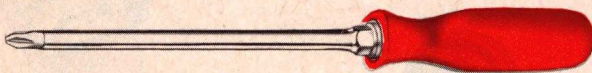
STRENGTH & DURABILITY... *Snap-on* SCREWDRIVERS



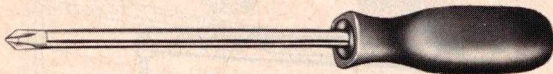
STANDARD...designed for use on common slotted screws. *Snap-on* has available a complete series of square and round shank drivers in a variety of tip sizes and blade lengths.



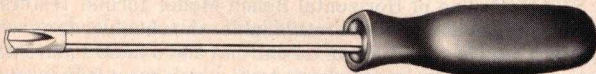
PHILLIPS...offer a more positive grip with less chance of slippage than the Standard type driver. Precisely machined for an exact fit, it is important that the right size tip be used for minimum wear on both the driver and screw head.



POZIDRIV...are quickly identified by their bright red handles. The POZIDRIV® configuration resembles the PHILLIPS® but provides a tighter fit between the driver and the screw.



REED & PRINCE...are often confused with the PHILLIPS® type screwdriver. Unlike the PHILLIPS® driver the tip of a Reed and Prince screwdriver comes to a sharp point.



CLUTCH...are often referred to as a "butterfly" or "figure eight" screwdriver because of the shape of its tip. The advantage of a Clutch type lies in its greater area of contact with the screw ... thus reducing the chance of slippage to a minimum.



TORX...designed to service the TORX® fasteners rapidly becoming commonplace in the automotive industry. *Snap-on* offers a variety of TORX® drivers, each designed to service a specific fastener size.

VARIETY...*Snap-on* has available, for you, the "professional mechanic," over 150 different screwdrivers to handle most of your fastener turning problems. *Snap-on* screwdrivers are available with standard, PHILLIPS®, POZIDRIV®, TORX® clutch and Reed and Prince tips in a variety of tip sizes and blade lengths. Unlike "ordinary" screwdrivers, *Snap-on* screwdrivers possess many exclusive features.

SHANKS...*Snap-on* has both square and round shank screwdrivers available. The square shank adds to the twisting strength and when tight screws are turned a wrench can be applied for extra leverage ...screwdrivers with round shanks are used for normal fastener turning. *Snap-on* screwdriver shanks are made using the finest cold rolled steel to resist twisting and breaking while turning and are chrome plated to help prevent rust and make cleaning easy.

TIPS...The tips on *Snap-on* screwdrivers are forged for maximum strength, precision machined to exact tolerances and vapor blasted to protect the chrome finish. Each *Snap-on* tip is manufactured to exacting width and depth requirements to insure a perfectly sized screwdriver for the job.

BOLSTERS...Hexagonal shaped bolsters provide a solid gripping surface for wrench assisted turning power in difficult turning situations. The bolsters are forged into the shank preventing the blade from being forced into the handle.

HANDLES...Square and triangular shaped handles are exclusive design features of *Snap-on* screwdrivers. Square handles are designed for routine turning and triangular handles are designed for "power grip" turning leverage. Both handle designs feature rounded corners that are comfortable to hold and will not cut into your hand. A rounded crown provides comfort when bearing down on a screw. Each *Snap-on* screwdriver features a handle that is the correct size for the blade. The handles are molded using a special cellulose acetate plastic which is resistant to moisture, grease, oil, gasoline and most solvents. *Snap-on* POZIDRIV® screwdrivers are quickly identified by their red handle. Thin Blade screwdrivers feature a square handle to provide a firm gripping surface and a recessed crown to permit finger pressure when turning.

SCREWDRIVER SAFETY TIPS

1. Never use a screwdriver as a prybar or a chisel.
2. Keep tips and fastener heads clean to prevent slipping.
3. Use the right screwdriver on the right fastener fitting. Never substitute one tip for another, especially PHILLIPS®, POZIDRIV® or Reed and Prince.
4. When reconditioning a screwdriver tip never grind the tip, file it by hand. Grinding destroys blade temper and strength.
5. Never use a pair of pliers to apply turning force to a screwdriver, especially a standard round shank driver.
6. Always be sure the screwdriver tip "seats" itself squarely in the fastener for a safe, snug fit. If clearance is a problem switch to a shorter length or offset driver.
7. Plastic handles are designed for comfort — not for electrical insulation.
8. Never use a screwdriver with rounded edges or tips.

REPLACEMENT BLADES

When blades are worn beyond repair replace them with new *Snap-on* blades. Order by adding suffix "RB" to screwdriver stock number. For example, SSDC4RB, etc. Exceptions: SSD234 uses SSDE43RB, STDP31 uses SSDP31RB, STDP42 uses SSDP42RB, SSDZ31 uses SSDP310RB, SSDZ42 uses SSDP420RB, SSDZ63 uses SSDP630RB and SSDZ84 uses SSDP840RB.

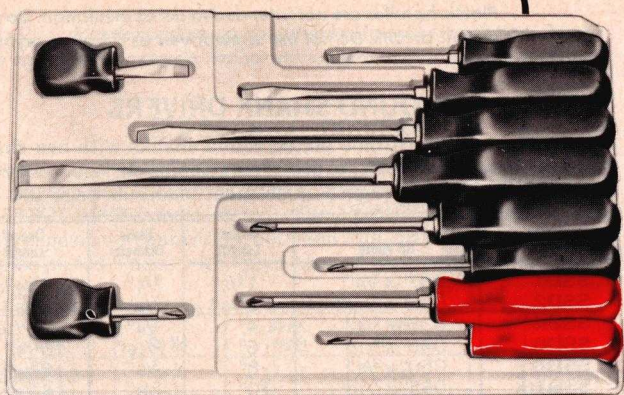
CONVENIENCE, VERSATILITY...SCREWDRIVER SETS

CONVENIENCE...Each *Snap-on* screwdriver set is packaged in a plastic organizer tray for fast tool inventory.

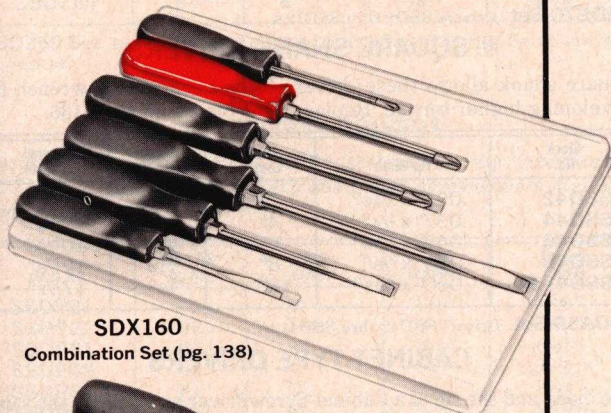
VERSATILITY...*Snap-on* screwdriver sets are designed to provide the user with a variety of blade lengths and tips in various configurations.

SPECIALTY...In addition to the sets illustrated here, *Snap-on* has many specially designed screwdrivers available to handle your particular turning problems.

Illustrated here are some of the sets *Snap-on* has designed for you. Components of these sets are found on the following pages.



SDX110
Large Combination Set (pg. 138)



SDX160
Combination Set (pg. 138)



SSDP50
PHILLIPS® Set (pg. 139)



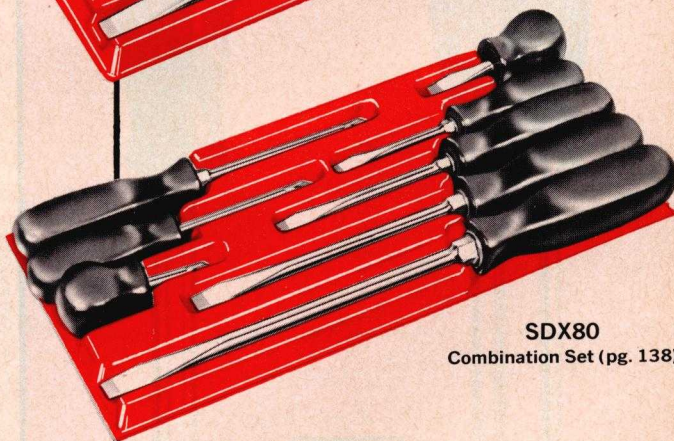
SSDZ50
POZIDRIV® Set (pg. 139)



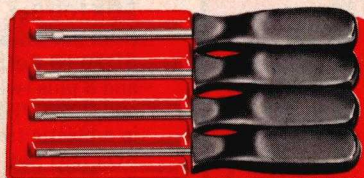
STD105A
"Power Grip" Combination Set (pg. 140)



SSDS50
Standard Set (pg. 138)



SDX80
Combination Set (pg. 138)



STX40
TORX® Set (pg. 139)

CAUTION: Plastic handles are not intended to act as insulation. Do not use on live electric circuits. Do not use screwdrivers as chisels or prybars.

A ROUND SHANK DRIVERS

These drivers have chrome plated round shanks with hex shaped bolsters, (except the SSD1) to provide a gripping surface so a wrench can be applied for leverage. Replacement blades on page 136.

Stock No.	Tip Width	Blade Length	Blade Diameter	Overall Length
SSD1	.037" x 1/4"	1 1/2"	1/4"	3 1/4"
SSD2	.032" x 3/16"	2 7/8"	7/32"	6 1/8"
SSD4	.037" x 1/4"	4"	1/4"	7 15/16"
SSD6	.046" x 5/16"	6"	5/16"	10 1/4"
SSD8	.050" x 3/8"	8"	3/8"	12 3/4"
SSD10	.055" x 7/16"	10"	3/8"	14 3/4"
SSD12A	.060" x 15/32"	12"	7/16"	17 13/16"
SSD104	.037" x 1/4"	1 1/2"	1/4"	5 7/16"

SSDS50 Set. One each of five drivers, SSD1 thru SSD8 in plastic tray (illustrated on p. 137)

SSDS70 Set. Drivers SSD1 thru SSD12A.

B SQUARE SHANK DRIVERS

Square shank allows these drivers to be used with a wrench for developing higher torque. Replacement blades on page 136.

Stock No.	Tip Width	Blade Length	Blade Diameter	Overall Length
SSD42	.032" x 3/16"	2 3/8"	3/16"	5 7/8"
SSD44	.037" x 1/4"	4"	1/4"	7 3/4"
SSD46	.046" x 5/16"	6"	9/32"	10 1/4"
SSD48	.050" x 3/8"	8"	5/16"	12 7/8"
SSD412A	.060" x 7/16"	12"	3/8"	17 1/2"

SSDA50 Set. Drivers SSD42 thru SSD412A.

CABINET-TYPE DRIVERS

The blade and the tip of a Cabinet Screwdriver and exactly the same width and are heat treated for strength and chrome plated to resist corrosion. Replacement blades are listed on page 136.

C 3/16" BLADE DIAMETER

Stock No.	Tip Width	Blade Length	Overall Length
SSD143	.032" x 1 1/64"	3"	6 1/4"
SSD146	.032" x 1 1/64"	6"	9 3/8"
SSD1410	.032" x 1 1/64"	10"	13 1/4"

SCD30 Set. Drivers SSD143 thru SSD1410.

D 1/4" BLADE DIAMETER

Stock No.	Tip Width	Blade Length	Overall Length
SSD460	.032" x 1/4"	6"	9 15/16"
SSD480	.032" x 1/4"	8"	11 5/16"
SSD1416	.028" x 13/64"	16"	19 1/4"
SSD4100	.032" x 1/4"	10"	13 5/16"
SSD4120	.032" x 1/4"	12"	15 5/16"
SSD4160	.032" x 1/4"	16"	19 11/16"

SCD50 Set. Drivers SSD460 thru SSD4160, except SSD1416.

SCD80 Set. All 3/16" and 1/4" drivers above, except SSD1416 in a plastic tray.

COMBINATION SETS

SDX80 Set. Includes five round shank drivers **SSD1, 2, 4, 6** and **8** plus three PHILLIPS® drivers from p. 139, **SSDP22, 31** and **42**...in plastic tray. Set is illustrated on p. 137.

SDX100 Set. Above set plus two additional PHILLIPS® drivers from p. 139, **SSDP63** and **64**...in two plastic trays.

SDX110 Set. Includes five standard tip drivers **SSD1, 2, 4, 6** and **8** plus two POZIDRIV® drivers **SSDZ31** and **42** from p. 139 and three PHILLIPS® drivers **SSDP22, 31** and **42** from p. 139 in a plastic tray. Set is illustrated on p. 137.

SDX160 Set. Includes three standard tip drivers **SSD2, 4** and **6**, plus two PHILLIPS® drivers **SSDP31** and **42** from p. 139 and one POZIDRIV® driver **SSDZ42** from p. 139...in plastic tray. Set is illustrated on p. 137.

CAUTION: Plastic handles are not intended to act as insulation. Do not use on live electric circuits. Do not use screwdrivers as prybars or chisels.

A POZIDRIV® DRIVERS

Although the POZIDRIV® resembles the PHILLIPS® tip configuration, the two should never be interchanged. For instant identification, the POZIDRIV® handle is red. The POZIDRIV® tip provides a tighter, positive connection between the driver and the screw. Chrome plated blades with vapor blasted tips. Replacement blades on page 136.

Stock No.	Tip No.	Blade Length	Blade Diameter	Overall Length
SSDZ22	#2	1 1/2"	1/4"	3 1/4"
SSDZ31	#1	3"	3/16"	6 1/4"
SSDZ42	#2	4"	1/4"	7 15/16"
SSDZ62	#2	6"	1/4"	9 15/16"
SSDZ63	#3	6"	5/16"	10 1/4"
SSDZ82	#2	8"	1/4"	11 15/16"
SSDZ84	#4	8"	3/8"	12 3/4"

SSDZ50 Set. Includes drivers SSDZ22, 31, 42, 63 and 84 in tray. Set is illustrated on page 137.

B PHILLIPS® DRIVERS

Designed for turning PHILLIPS® screws. Do not interchange POZIDRIV®, PHILLIPS® or Reed and Prince screwdrivers. Replacement blades on page 136.

Stock No.	PHILLIPS® Tip No.	Blade Length	Blade Diameter	Overall Length
SSDP21	#1	1"	3/16"	2 3/4"
SSDP22	#2	1 1/2"	1/4"	3 1/4"
SSDP31	#1	3"	3/16"	6 1/4"
SSDP42	#2	4"	1/4"	7 15/16"
SSDP61	#1	6"	3/16"	9 1/4"
SSDP62	#2	6"	1/4"	9 15/16"
SSDP63	#3	6 1/8"	5/16"	10 3/8"
SSDP64	#4	5 15/16"	3/8"	10 1 1/16"
SSDP82	#2	8"	1/4"	11 15/16"
SSDP101	#1	10"	3/16"	13 1/4"
SSDP102	#2	9 5/8"	1/4"	13 1/2"
SSDP162	#2	16"	1/4"	19 15/16"
SSDP242	#2	1 1/2"	1/4"	5 7/16"
SSDP243	#2	3"	1/4"	4 3/4"

SSDP50 Set. Includes SSDP22, 31, 42, 63 and 64 in tray. Set is illustrated on page 137.

C TORX® DRIVERS

Designed for turning internal type TORX® fasteners currently found in the automotive industry.

Stock No.	Fastener Size	Blade Length	Blade Diameter	Overall Length
SSTX15	T15	3"	1/8"	6 1/4"
SSTX20	T20	3"	5/32"	6 1/4"
SSTX25	T25	3"	11/64"	6 1/4"
SSTX27	T27	3"	13/64"	6 1/4"

STX40 Set. Includes SSTX15 thru SSTX27 in a plastic tray. Set is illustrated on page 137.

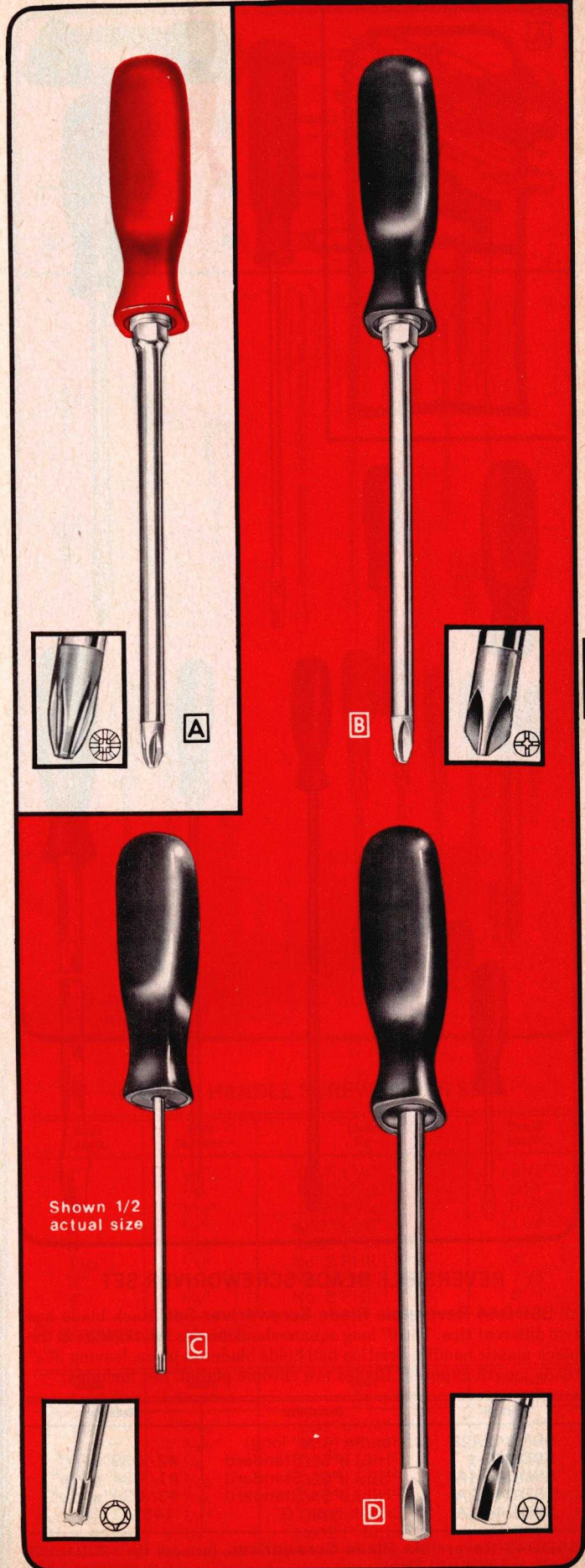
D CLUTCH DRIVERS

For turning screws of the clutch-bit type "G", (also called figure eight or butterfly screws).

Stock No.	Tip Size	Blade Length	Blade Diameter	Overall Length
SSDC4	1/8"	4"	5/32"	6 7/8"
SSDC5	5/32"	4"	5/32"	6 7/8"
SSDC6	3/16"	4"	11/64"	7 1/4"
SSDC8	1/4"	5"	15/16"	8 3/4"
SSDC10	5/16"	5"	19/64"	9 1/4"
SSDC12	3/8"	6"	13/32"	10 1/4"

SSDC60 Set. Drivers SSDC4 thru SSDC12.

PHILLIPS® is a registered trademark of the PHILLIPS SCREW COMPANY. TORX® is a registered trademark of CAMCAR/TEXTRON.



Screwdrivers

SPECIALTY

CAUTION: Plastic handles are not intended to act as insulation. Do not use on live electric circuits. Do not use screwdrivers as prybars or chisels.

THIN BLADE DRIVERS

Black plastic handles have recessed ends for finger pressure.

Standard .018" x 1/8"	Blade Length	Standard .028" x 3/16"	Blade Length	PHILLIPS® Tip Size	Blade Length
SSDE42	2"	SSDE63	3"	SSDEP30(#0)	3"
SSDE43	3"	SSDE64	4"	SSDEP31(#1)	3"
SSDE44	4"	SSDE66	6"	SSDEP61(#1)	6"
SSDE46	6"	SSDE68	8"	SSDEP101(#1)	10"
SSDE48	8"	SSDE610	10"		

SSDE100 Set. Includes all Standard Drivers above in C109 Kit Bag.

SSDE450 Set. Includes all Standard .018" x 1/8" Drivers above.

SSDE650 Set. Includes all Standard .028" x 3/16" Drivers above.

SSDEP104 Set. Includes all PHILLIPS® Drivers above.

HEAVY DUTY "POWER-GRIP" HANDLE DRIVERS

Triangular shaped cellulose acetate "POWER GRIP" handles provide extra turning leverage.

Stock No.	Tip Size	Blade Length	Blade Diameter	Overall Length
PHILLIPS® TIP DRIVERS				
•STDP31	#1	3"	3/16"	6 15/16"
•STDP42	#2	4"	1/4"	8 1/8"
STDP63	#3	6 1/8"	5/16"	10 7/8"

STANDARD TIP DRIVERS

•STD3	.032" x 3/16"	2 7/8"	1/4"	6 13/16"
•STD4	.037" x 9/32"	4"	1/4"	8 1/4"
•STD6	.046" x 5/16"	6"	5/16"	10 3/4"
STD8	.050" x 3/8"	8"	3/8"	13 5/16"
STD43	.050" x 3/8"	2 13/16"	5/16"	7 5/32"

STD105A Set. Includes all Drivers above indicated with a (•) in a plastic tray. Set is illustrated on page 137.

STD107 Set. Includes all Drivers above except STD43 in plastic tray.

REED AND PRINCE DRIVERS

Reed and Prince recessed cross-slot screws are similar to PHILLIPS®, but should not be interchanged.

Stock No.	Tip Size	Blade Length	Blade Diameter	Overall Length
SSDR1	1/4"	1 1/2"	1/4"	3 1/4"
SSDR3	3/16"	2 1/2"	3/16"	5 3/8"
SSDR4	1/4"	4"	1/4"	7 7/8"
SSDR6	5/16"	6"	5/16"	10 1/4"
SSDR8	3/8"	8"	3/8"	12 7/8"

SSDR50 Set. Drivers SSDR1 thru SSDR8.

MISCELLANEOUS DRIVERS

Stock Number	Description	Blade Tip	Blade Dia.	Blade Lgh.	Overall Length
E SSDP319	Thin PHILL.®	#1	1/8"	3 1/4"	6 1/2"
F •SSDP216	Ex. Long PHILL.®	#2	3/16"	16"	19 1/4"
G SSD234	Short Std.	.020" x 1/8"	9/64"	3"	6 1/4"
G SSD232	Short Std.	.025" x 1/8"	1/8"	2"	4 3/4"
H†SSD422A	Ex. Long Std.	.046" x 5/16"	5/16"	21 3/4"	25 1/2"
J SSD418	Hvy. Duty Std.	.075" x 1/2"	7/16"	18"	23 13/16"

•Chrome plated blade, vapor blasted tip. Tip is specially heat treated (1") for extra strength.

†Blade has black oxide finish.

REVERSIBLE BLADE SCREWDRIVER SET

A SSDD44 Reversible Blade Screwdriver Set. Each blade has two different tips. The 6" long square shank blades interchange in the black plastic handle. Friction ball holds blades in place, leaving 3/4" blade length exposed. Blades are chrome plated. Set includes:

Stock No.	Description	Blade Tip
SSDD42A2R	Handle (4 1/4" long)	—
SSDD42-1	PHILLIPS®/Standard	#2/.039" x 1/4"
SSDD44-1A	PHILLIPS®/Standard	#1/.034" x 3/16"
SSDD44-2A	PHILLIPS®/Standard	#3/.039" x 5/16"
SSDD44-3A	Clutch-type "G"	.145"/.170"

SSDD42 Reversible Blade Screwdriver. Includes the SSDD42A2R Handle and SSDD42-1 Blade.

WOOD & PLASTIC HANDLES

Screwdrivers

CAUTION: Handles are not intended to act as insulation. Do not use on live electric circuits. Do not use screwdrivers as prybars or chisels.

MAGNETIC SCREWDRIVER SETS

Magnet anchored in hollow shaft holds 1/4" hex shank bits (below) and magnetizes screw. All sets except for SSDM41 and SSDMS1 feature hollow black handles for storing bits.

- A SSDM1A.** 6 1/2" driver plus SDM211, 213, 222 and 252 Bits.
SSDM40A. 9 7/8" driver plus SDM211, 213, 221, 222 and 252 Bits.
SSDM80A. 13 1/8" driver plus SDM211, 213, 221, 222 and 252 Bits.
SSDM41. 8" driver plus SDM213 Bit.
SSTM40. 9 7/8" driver plus SDMT10 thru SDMT 30 Bits.
B SSDMS1. 2 5/8" driver plus SDM222 Bit.

1/4" HEX SHANK DRIVER BITS

Stock No.	Bit Type/Size	Stock No.	Bit Type/Size	Stock No.	TORX® Bits Sizes
C SDM211	STD./031" x 3/16"	F SDM243	Clutch/1/8"	H SDMT8	T8
C SDM212	STD./035" x 1/4"	F SDM244	Clutch/5/32"	H SDMT9	T9
C SDM213	STD./040" x 9/32"	F SDM245	Clutch/3/16"	H SDMT10	T10
D SDM221	PHILL.® #1	F SDM246	Clutch/1/4"	H SDMT15	T15
D SDM222	PHILL.® #2	F SDM247	Clutch/5/16"	H SDMT20	T20
D SDM223	PHILL.® #3	G SDM251	POZI®/ #1	H SDMT25	T25
E SDM231	R & P #6	G SDM252	POZI®/ #2	H SDMT27	T27
F SDM242	Clutch/3/32"	G SDM253	POZI®/ #3	H SDMT30	T30
				H SDMT40	T40

STUBBY SCREWDRIVERS

- J SD11A Standard Driver.** End of fluted plastic handle is concave to act as finger pivot. Blade 7/8" long, tip .037" x 3/16", O.L. 1 11/16."
K PHILLIPS® Drivers. Yellow fluted plastic handles have concave end to act as finger pivot. Blades 3/16" long, O.L. 1 9/16."
SDP11. No. 1 PHILLIPS® Driver.
SDP12. No. 2 PHILLIPS® Driver.

SPARK TEST SCREWDRIVERS

- Neon tube in plastic handle tells condition of plug by flash. Brilliant means good, thin means too narrow a gap, no flash indicates no spark.
L SSD214. Includes pocket clip. Blade 2 1/4", tip .025" x 1/8".
M SSD145. Blade 5 1/8", tip .032" x 3/16".

PLASTIC HANDLE SCREWDRIVERS

Blades are anchored in clear yellow plastic solvent resistant handles.

N STANDARD TIP SCREWDRIVERS

Stock No.	Blade Tip	Blade Length	Blade Diameter	Overall Length
UDS101	.037" x 1/4"	1 1/2"	3/16"	3 1/4"
UDS102	.032" x 3/16"	2 1/2"	3/16"	5 3/4"
UDS104	.037" x 1/4"	4"	1/4"	7 3/4"
UDS106	.046" x 5/16"	6"	5/16"	10 1/4"
UDS108	.050" x 3/8"	8"	3/8"	12 3/4"
UDS112	.050" x 13/32"	12"	3/8"	16 3/4"

UDS156 Set. All Standard Tip Drivers above except UDS112.

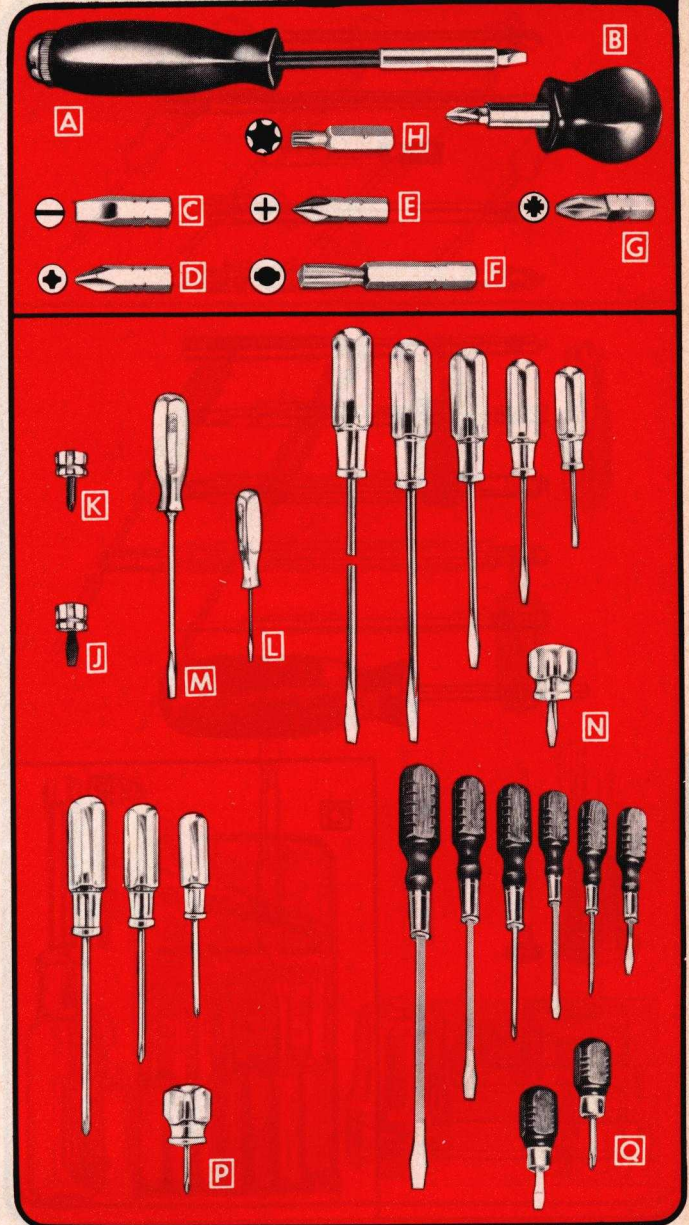
P PHILLIPS® TIP SCREWDRIVERS

Stock No.	PHILLIPS® Bit	Blade Length	Blade Diameter	Overall Length
UDP122	No. 2	1 1/2"	1/4"	3 1/4"
UDP131	No. 1	3"	3/16"	6 1/4"
UDP142	No. 2	4"	1/4"	7 3/4"
UDP163	No. 3	6"	5/16"	10 1/4"

UDP140 Set. All PHILLIPS® Screwdrivers above.

UDS150K Set. Includes UDS102, 104, 106, UDP131 and 142 Screwdrivers.

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Q WOOD HANDLE SCREWDRIVER SETS

Blade Length	Blade Diameter	Blade Tip	Overall Length
1"	1/4"	.037" x 1/4"	3 1/2"
2"	3/16"	.032" x 3/16"	6 1/8"
4"	3/16"	.032" x 3/16"	8 1/8"
6"	1/4"	.037" x 1/4"	11 1/8"
8"	5/16"	.042" x 5/16"	13 7/8"
1 1/2"	1/4"	No. 2 PHILLIPS®	4"
3"	3/16"	No. 1 PHILLIPS®	7 1/8"
4"	1/4"	No. 2 PHILLIPS®	8 7/8"

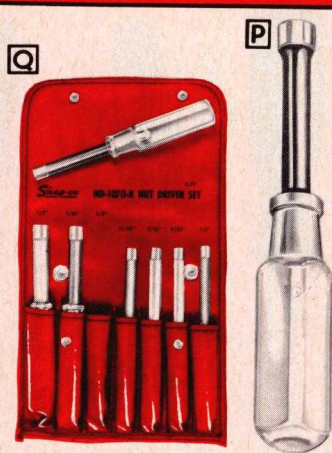
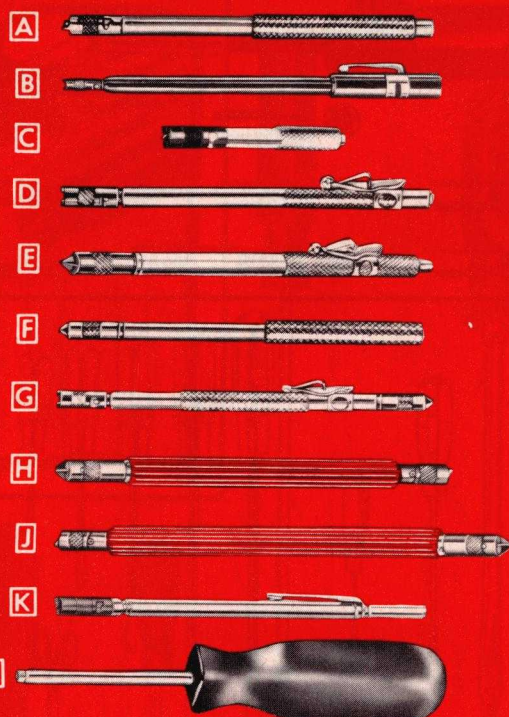
Q SDWW80 Set. All drivers above.

Blade Length	Blade Diameter	Blade Tip	Overall Length
2"	3/16"	.032" x 3/16"	6 1/8"
4"	3/16"	.032" x 3/16"	8 1/8"
6"	1/4"	.037" x 1/4"	11 1/8"
8"	3/16"	.032" x 3/16"	12 1/8"
8"	5/16"	.042" x 5/16"	13 7/8"
10"	1/4"	.037" x 1/4"	15 1/8"
4"	1/4"	No. 2 PHILLIPS®	8 7/8"

Q SDWW70 Set. All drivers above.

Screwdrivers

SCREW STARTERS & MISCELLANEOUS



NUT DRIVERS

6 pt. openings. U.S. handles have recessed thumb depression. Metric models have amber color handle with black tubing, U.S. has amber handle with various color tubing over shank.

U. S. UNITS				METRIC UNITS			
Fed. Spec. GGG-W-657C			Bolt Clear. Dia.	Stock Number	Size (mm)	Overall Length (mm)	Bolt Clear. Dia. (mm)
Stock Number	Size	Overall Length					
ND104	1/8"	6 5/8"	3/32"	NDM40A	4	168.3	2.4
ND105	5/32"	6 5/8"	7/64"	NDM50A	5	168.3	3.2
ND106	3/16"	6 5/8"	1/8"	NDM55A	5.5	168.3	3.8
ND107	7/32"	6 5/8"	1/8"	NDM70A	7	168.3	3.8
ND108	1/4"	6 5/8"	9/64"	NDM80A	8	168.3	4.7
ND109	9/32"	6 5/8"	9/64"	NDM100A	10	184.2	7.1
ND110	5/16"	6 5/8"	3/16"	NDM110A	11	184.2	7.7
ND111	11/32"	6 5/8"	13/64"	NDM120A	12	184.2	8.6
ND112	3/8"	7 1/4"	9/32"	NDM130A	13	184.2	9.2
ND114	7/16"	7 1/4"	5/16"				
ND116	1/2"	7 1/4"	23/64"				
ND118	9/16"	7 1/4"	27/64"				
ND120	5/8"	7 1/4"	1/2"				

ND1070K U. S. Set. ND108 thru 116 in C77B Kit Bag.

ND1110 U. S. Set. ND104 thru ND120.

NDM1090AK Metric Set. All metric units above, in C96 Kit Bag.

CAUTION: Handles are not intended to act as insulation. Do not use on live electric circuits. Do not use screwdrivers as prybars or chisels.

STANDARD SCREW STARTERS

Spring-loaded steel bits grip screw slot wall to withstand an 8 lb. pull, yet release automatically when screw pressure reaches certain tension. Fed. Spec. GGG-S-121E applies.

A ALUMINUM HANDLES

Stock No.	Handle Diam.	Blade Tip	Overall Length	Small Model
SS3A	5/16"	.032" x 9/32"	2 1/2"	....
SS5A	5/16"	.032" x 9/32"	5"	•GA230
SS9A	5/16"	.032" x 9/32"	9"	....
SS15A	5/16"	.032" x 9/32"	15"	....

SS40 Set. All Aluminum Handle Models above, except GA230.

B PLASTIC HANDLES

Stock No.	Handle Diam.	Blade Tip	Overall Length	Small Model
SSN3A	1/16"	.032" x 9/32"	2 5/8"	....
SSN5A	7/16"	.032" x 9/32"	5 7/8"	•GA233
SSN9A	15/32"	.032" x 9/32"	8 7/8"	....

SS30N Set. All Plastic Handle Models above except GA233.

•GA230 and GA233 have .015" x 5/32" tip.

MAGNETIC SCREW STARTERS

Small, powerful magnets in handle end provide sure grip.

Stock No.	Handle Diameter	Blade Tip	Overall Length
C SSM3	5/16"	.032" x 9/32"	2 1/2"
D SSM5A	5/16"	.032" x 9/32"	5 1/4"
E SSM6	9/32"	PHILLIPS®	5 1/2"

F PHILLIPS® SCREW STARTERS

Knurled aluminum handle for firm grip.

Stock No.	Handle Diameter	Overall Length
GA260	9/32"	2 1/2"
•GA261A	9/32"	5 1/2"

•Includes pocket clip.

COMBINATION SCREW STARTERS

Standard tip on one end, PHILLIPS® tip on other end. GA199 has knurled aluminum handle, GA228 has nylon handle; SSNC9 features red plastic handle which is rated shock resistant up to 250 volts.

Stock No.	Handle Diameter	Blade Tip	Overall Length
G GA199	9/32"	.032" x 9/32" / #2	5 7/8"
H GA228	9/32"	.032" x 9/32" / #3	5 3/4"
J SSNC9	9/32"	.032" x 9/32" / #2	9"

K TELESCOPIC SCREW STARTER

CF178 Telescopic Screw Starter. Combination standard (.032" x 9/32") screw starter and magnetic pick-up tool. The magnet on the handle end is ideal for retrieving screws, small fasteners or other parts in restricted areas. Features a heavy duty pocket clip. Closed overall length is 6" Open overall length is 14 3/4". Chrome plated with black bit.

L SQUARE TIP DRIVER

S8698 Square Tip Driver. For recessed square head screws on campers, boats, truck cab roofs and side panels. Black plastic handle. Square tip 7/64" blade length 2 3/8" overall length 6 1/8".

M MINIATURE SCREWDRIVER SET

CM3033 Miniature Screwdriver Set. Includes four blades in sizes .055", .070", .080" and .100". In plastic case.

OFFSET DRIVERS

Stock No.	Description	Blade Tip	Overall Length
ST012B	PHILLIPS®	#1, #2	4 3/4"
ST034B	PHILLIPS®	#3, #4	6"
020	Standard	.025" x 1/4"	4"
030	Standard	.030" x 5/16"	4 11/16"
040	Standard	.046" x 3/8"	5 1/2"

ST50 Set. All drivers above in plastic case.

BITS & SOCKETS

Screwdrivers

POCKET SCREWDRIVERS

All the screwdrivers listed below feature a pocket clip.

Stock Number	Blade Tip	Overall Length
A •SSD204	.025" x 1/8"	4 3/4"
B ••SSD214	.025" x 1/8"	5"
C †SSD224	.025" x 1/8"	4 7/8"
D SSDP204	#1 PHILLIPS®	4 3/4"

†Magnet on handle; specially designed for distributor work.

••Spark Test Screwdriver.

●Magnetic tip.

SPIRAL RATCHET SCREWDRIVERS

Both screwdrivers listed below feature quick-return mechanisms so handles return to driving position, freely revolving chuck sleeves to steady the driver and screws, and a positive shifter for right or left hand drive as well as a rigid setting.

E YA116. All purpose, noninsulated. Cordovan texture handle with an octagon shaped end to eliminate roll. Included is a 1/4" slotted head tip and a No. 2 PHILLIPS® head tip. Extended length 17 3/8", closed length 12 1/4".

F YA117. Noninsulated, designed for light duty applications. Same handle type as YA116 except for no roll feature. Included is a 3/16" slotted head tip and a No. 2 PHILLIPS® tip. Extended length 11 11/16", closed length 8 3/8".

OPTIONAL BITS FOR YA116 & YA117

Stock Number	Type/Size	Overall Length
†SDM401	Slotted Tip, 7/32"	3 7/8"
†SDM402	Slotted Tip, 1/4"	3 7/8"
†SDM403	Slotted Tip, 9/32"	3 7/8"
†SDM411	PHILLIPS® #1	3 1/4"
†SDM412	PHILLIPS® #2	3 1/4"
†SDM413	PHILLIPS® #3	3 1/4"
•SDM421	Slotted Tip, 5/32"	2 7/8"
•SDM422	Slotted Tip, 3/16"	2 7/8"
•SDM423	Slotted Tip, 7/32"	2 7/8"
•SDM431	PHILLIPS® #1	1 3/4"
•SDM432	PHILLIPS® #2	1 3/4"

†Used with YA117 Spiral Ratcheting Screwdriver.

•Used with YA116 Spiral Ratcheting Screwdriver.

SCRULOX® & TRI-WING® 1/4" HEX BITS

These 1/4" hex bits can be used with magnetic sockets and screwdrivers. "BTS" for campers/trailers, "BTW" for TRI-WING® screws. Overall length 1".

Stock No.	Screw Size	TRI-WING® Size	Stock No.	Screw Size	TRI-WING® Size
G BTS0	0	—	H BTW3	6	3
G BTS1	1	—	H BTW4	8	4
G BTS2	2	—	H BTW5	10	5
G BTS3	3	—	H BTW6	1/4"	6
H BTW2	.440"	2			

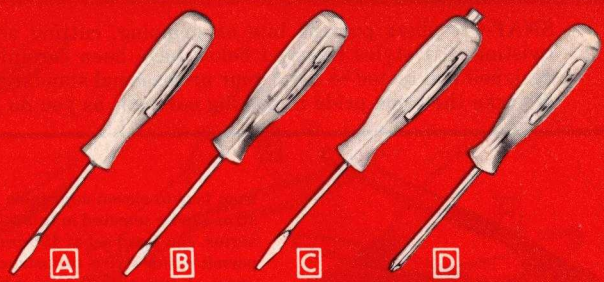
G CRA45 Bit. 5/32" bit with a 1/4" hex design. Use with TMBS8 and FBS8 Sockets at right. 1 3/32" long.

K TMC109 Quick Coupler Driver. Designed for use with any 1/4" drive handle. Spring-release shell retracts to accept 1/4" hex power-type screwdriver bits. Overall length 1 1/4".

1/4" HEX POWER TYPE BITS

1/4" Power Bits, overall length of 1 1/16", are for use with the TMC109 Quick Coupler Driver (above). Series is made up of 4 types of bits.

Stock No.	Bit Type/Size	Blade Width/Diameter	Stock No.	Bit Type/Size	Blade Width/Diameter
L SDM311	Standard/.034"	.187"	M SDM323	PHILLIPS® #3	5/16"
L SDM312	Standard/.038"	.250"	N SDM344	Clutch/5/32" Type "A"	—
L SDM313	Standard/.046"	.312"	P SDM351	POZIDRIV® #1	3/16"
L SDM314	Standard/.050"	.360"	P SDM352	POZIDRIV® #2	1/4"
M SDM321	PHILLIPS® #1	3/16"	P SDM353	POZIDRIV® #3	5/16"
M SDM322	PHILLIPS® #2	1/4"			



Q TMC107 Moody Bit Holder. 1/4" hex collar for tightening. 1/4" drive, outside diameter 7/16", overall length 1 1/8".

1/4" & 5/16" HEX SOCKETS

These sockets serve the CRA180BK Set on page 109 and the 1/4" hex bits at left. The 1/4" hex sockets also work well with the "SDM" screwdriver bits below. (FBS8 and FBS9 have "Flank Drive" broach.)

R TMBS8 Magnetic Socket. 1/4" hex opening. Magnet holds bits securely.

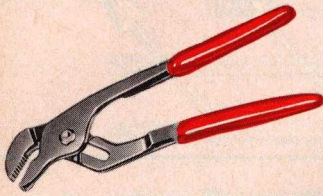
S FBS8 Socket. 1/4" hex, 3/8" drive.

T FBS9 Socket. 5/16" hex, 3/8" drive.

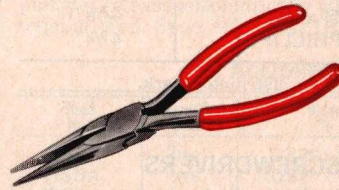
A GRIP ON QUALITY... **Snap-on** PLIERS

SNAP-ON pliers put the bite on gripping, cutting and twisting. Six styles featured below have been carefully designed and tested to meet your professional standards. We take the same pride in making our tools as you do in

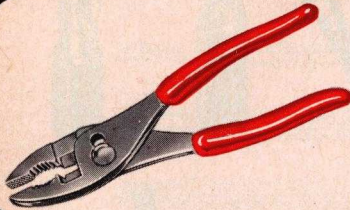
using them. When you grip a SNAP-ON pliers you're holding quality, comfort and dependability. Along with our pliers comes our famous Dealer service. Invest in the best... make SNAP-ON your first choice.



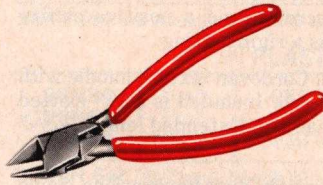
INTERLOCKING PLIERS... from four to eleven adjustable jaw sizes can be selected in this pliers series. Jaw head set at 45° angles permit easier access to obstructed areas. Long and strong, pliers handles increase leverage and provide a firm grip.



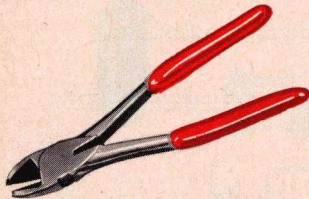
NEEDLE NOSE PLIERS... a variety of models such as Bent Needle Nose and Duck Bill. Jaw lengths from 27/32" up to 8". Properly aligned jaws and precisely machined teeth provide a slip resistant grip. A black finish enhances the appearance of most.



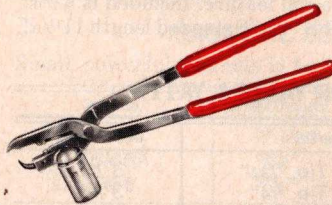
SLIP-JOINT PLIERS... bolted stud allows jaw head to lock into two positions. Bolt can be adjusted to desired tension for easiest application. Machined teeth provide a sure grip. Some slip-joint pliers are also combination grippers and cutters.



ELECTRONIC PLIERS... True Flush and Semi-Flush cutting edges handle a wide range of wire gauges. Spring loaded handle keeps jaws open for use. Red plastic grips provide comfort.



CUTTING PLIERS... range in size from the Midget Diagonal Cutters to the Compound Leverage Cutters. Perfect jaw alignment plus shearing action reduces wear on cutting edge. Smooth joint operation reduces hand fatigue.



SPECIAL PURPOSE PLIERS ... brake, battery, tune-up, wheel balancing and many other unique applications. These specially designed pliers round out the extensive SNAP-ON line. All special purpose pliers are heat tempered for strength and durability.

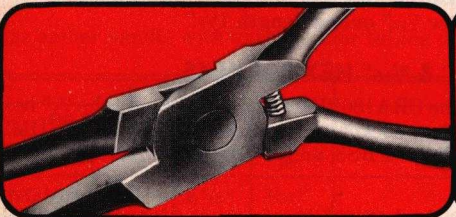
SPECIAL FEATURES



STRENGTH and DURABILITY ... jaw teeth are precision machined providing hang-on grip. Teeth are broached so they have round bottom grooves called fillets. This reduces stress points increasing strength and prolonging tool life.



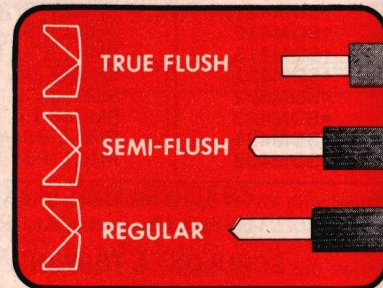
SHEAR NOT PINCH ... unlike most cutting pliers, SNAP-ON cutting edges overlap. Therefore, the wire is sheared and not pinched... resulting in a smoother cut, less hand pressure and longer tool life.



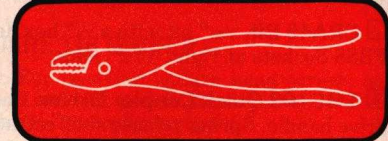
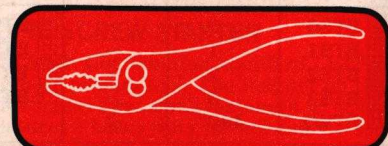
JAW OPENING SPRINGS ... special feature of our Electronic Pliers is the spring behind the joint. This allows the pliers to return to an open position upon release, helping to relieve finger fatigue.



VACUUM GRIP ... many pliers include a "raised cup" pattern to provide a solid, non-slip grip. The little whorls in this pattern tend to act as tiny "suction discs" for a firm hold.



CUTTING EDGE ... True Flush is for light gauge wire, Semi-Flush for medium gauge and Regular is for heavy gauge.



HANDLE STYLES ... Bow shape (top) for routine cutting and gripping. Full fashion for heavy duty applications. Vinyl grips available in sets of two (page 148).

SAFETY TIPS:

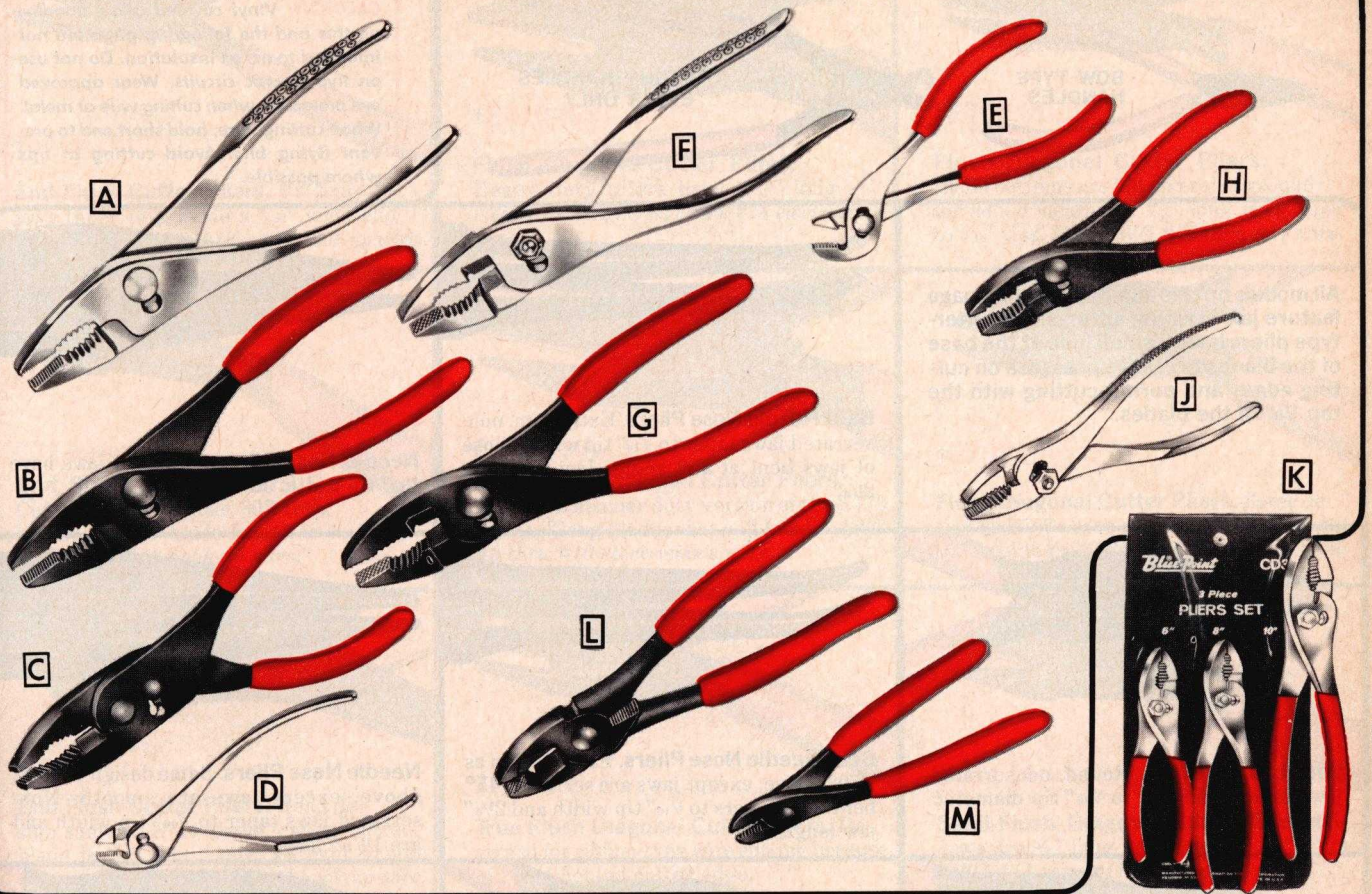
- Plastic coated pliers handles are not intended to act as insulation. Do not use on live electric circuits.
- Wear approved eye protection when cutting wire or metal.
- When cutting wire, hold short end to prevent flying bits.
- Avoid cutting at tips where possible.

MAINTENANCE TIPS:

- Periodic joint adjustments maximize pliers efficiency.
- Prolong pliers life and operation with frequent cleaning.
- Prevent pliers jaw damage with proper tool application.
- Ask your Dealer about pliers reconditioning service.

COMBINATION SLIP-JOINT

Pliers



— On cutter models, jaws overlap for shearing action. —

CAUTION: Vinyl covered pliers handles are not intended to act as insulation. Do not use on live electric circuits.

COMBINATION PLIERS

A Chrome Plated Finish. Feature 2-position slip joints. Handles have raised "Vacuum Grip" pattern. Chrome plating helps resist rust and corrosion.

Stock No.	Overall Length	Jaw Width
44	4 1/2"	15/64"
45	5 9/16"	23/64"
46	6 7/16"	23/64"
47	7 1/2"	13/32"

B Plastic Grip Models. Same design as above, but with red vinyl covered handles, black finish and no handle pattern. 46P and 49P only feature chrome finish with red vinyl covered handles.

Stock No.	Overall Length	Jaw Width
44CP	4 1/2"	15/64"
45CP	5 9/16"	23/64"
46CP	6 7/16"	23/64"
46P	6 7/16"	23/64"
47CP	7 1/2"	13/32"
49P	9 1/8"	1/2"

C HL138CP (7 7/8") High-Leverage Combination Pliers. Requires only 1/4" the effort normally needed for cutting/gripping. Jaws are 13/32" thick. 1 1/16" jaw opening. Black oxide finish and red vinyl covered handles.

D 50C (5") Ignition Pliers. Narrow jaws designed to reach in and turn thin nuts found on distributors and voltage regulators. Slight angle of head assists when working around obstructions. Two-position slip joint permits 13/32" maximum parallel jaw opening. No pattern on handles. Natural steel finish on head and handles.

E 105P (5") Ignition Pliers. 3-position adjustable slip joint. Ideal for servicing carburetor, ignition and radio. Chrome finish with red vinyl covered handles.

F 137 (7 1/2") Heavy Duty Combination Pliers. Combines gripping leverage and cutting action. 13/32" thick jaws. Slip joint has two positions. Countersunk stud allows cutting close to object. Handles have raised "Vacuum Grip" pattern. Chrome plated.

G 137CP (7 1/2") Heavy Duty Combination Pliers. Same head design as 137 above, except it has black oxide finish and red vinyl covered handles.

H 35CP (5") Combination Pliers. Features same head design as 137CP above. No pattern on handles. Finish is black oxide. Includes red vinyl covered handles.

J DK15 (5") Combination Pliers. Wedge type cutter at jaw base. Features chrome finish.

K CD30 Combination Pliers Set. Set includes 3 pliers listed below. Same design as DK15 above except each pliers includes red vinyl covered handles. Set comes in plastic pouch.

Stock No.	Overall Length	Jaw Capacity
CD46CP	6"	1"
CD48CP	8"	1 1/4"
CD410CP	10"	1 1/2"

SPECIAL PLIERS

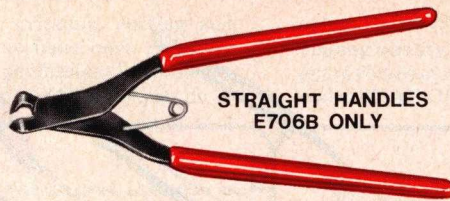
L 57CP (7") Lineman's Pliers. Localized jaw tempering increases strength in this unit. Cutter heads are machined to give perfectly match blades and are induction hardened. This pliers features a black oxide finish. Red vinyl covered handles.

59CP (9 1/4") Lineman's Pliers. Same design as 57CP above, except longer.

M 5CP (4 1/2") Midget Pliers. Ideal for extremely small work. Single riveted joint. Serrated teeth on jaws. Black oxide finish and red vinyl covered handles.



BOW-TYPE HANDLES



**STRAIGHT HANDLES
E706B ONLY**

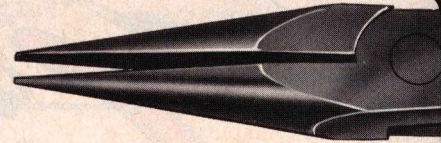
CAUTION: Vinyl covered pliers handles on this and the following page are not intended to act as insulation. Do not use on live electric circuits. Wear approved eye protection when cutting wire or metal. When cutting wire, hold short end to prevent flying bits. Avoid cutting at tips where possible.

All models on this and the following page feature jaw-opening springs. All cutter-type pliers have a small hole at the base of the blades to relieve pressure on cutting edges and permit cutting with the top $\frac{1}{8}$ " of the blades.



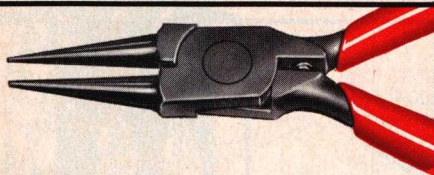
E702 ($6\frac{13}{32}$ ")

Bent Needle Nose Pliers. Extra-slim, non-serrated jaws taper to $\frac{1}{16}$ " tip width. Nose of jaws bent at 45° angle. Jaw length is $2\frac{1}{4}$ ".



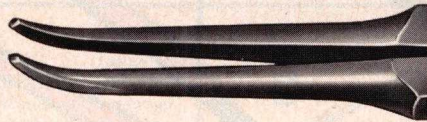
E712 (6")

Needle Nose Pliers. Serrated jaws have $\frac{1}{16}$ " tip width. Jaws are $1\frac{11}{16}$ " long.



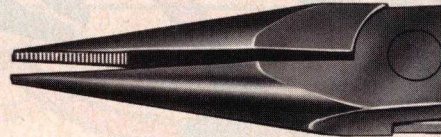
E700 ($4\frac{13}{32}$ ")

Wire Looper Pliers. Round, nonserrated jaws taper from $\frac{7}{32}$ " to $\frac{3}{16}$ " tip diameter. Jaw length, $\frac{7}{8}$ ".



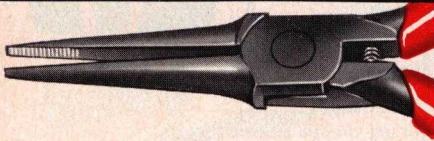
E704 ($6\frac{13}{32}$ ")

Bent Needle Nose Pliers. Same design as E702 above, except jaws are serrated. 45° bent nose tapers to $\frac{1}{16}$ " tip width and $2\frac{1}{4}$ " jaw length.



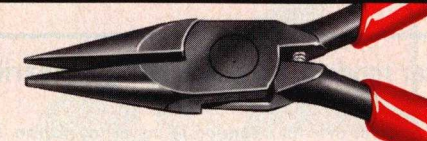
E716 (6")

Needle Nose Pliers. Same design as E712 above, except jaws are smooth. Nonserrated jaws taper to $\frac{1}{16}$ " tip width and are $1\frac{11}{16}$ " long.



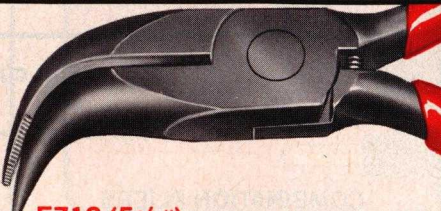
E715 ($5\frac{1}{16}$ ")

Needle Nose Pliers. Extra slim, serrated jaws taper to $\frac{1}{16}$ " tip width. Jaw length is $1\frac{1}{4}$ ".



E708 ($4\frac{17}{32}$ ")

Needle Nose Pliers. Short, non-serrated jaws are $\frac{7}{8}$ " long. Jaws taper to a $\frac{1}{16}$ " tip width.



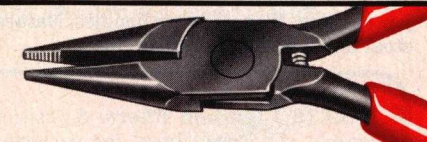
E718 ($5\frac{1}{2}$ ")

Offset Needle Nose Pliers. Serrated jaws are bent at a 70° angle. Jaw tip width is $\frac{1}{16}$ "; jaw length is $1\frac{1}{8}$ ".



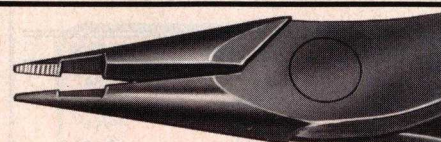
E721 ($5\frac{1}{16}$ ")

Needle Nose Pliers. Same design as E715 above, except the jaws are smooth. Nonserrated jaws are $1\frac{1}{4}$ " long and taper to $\frac{1}{16}$ " tip width.



E713 ($4\frac{17}{32}$ ")

Needle Nose Pliers. Same design as E708 above, except jaw ends are serrated. $\frac{7}{8}$ " long jaws with $\frac{1}{16}$ " tip width.



†E751 ($5\frac{9}{16}$ ")

Gripper/Cutter Pliers. Has easily removable spring in handle. $\frac{1}{8}$ " long tip with cutter blades $\frac{7}{32}$ " from tip end. Cuts AWG #18 hook-up wire.



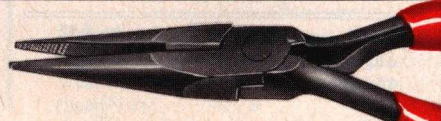
E703 ($6\frac{1}{2}$ ")

Needle Nose Pliers. Same design as E715 above, except it's longer and jaw length is $2\frac{3}{16}$ ". Serrated jaws taper to $\frac{1}{16}$ " tip width.



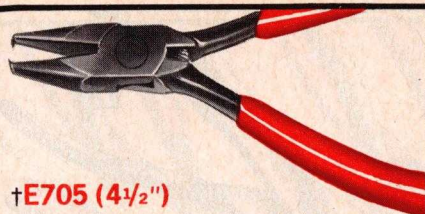
E701 ($6\frac{1}{2}$ ")

Needle Nose Pliers. Same design as E703 at left, except the jaws are smooth. Nonserrated jaws are $2\frac{3}{16}$ " long and taper to $\frac{1}{16}$ " tip width.



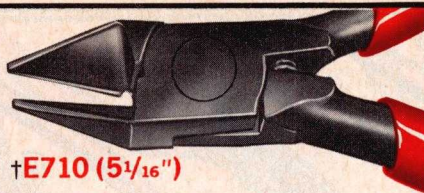
†E796 (7")

Gripper/Cutter Pliers. Both a needle nose pliers and a cutter in one unit. $2\frac{1}{4}$ " long tips with cutter blades $1\frac{3}{4}$ " from tip end. Cuts AWG #8 thru #10 electrician's wire.



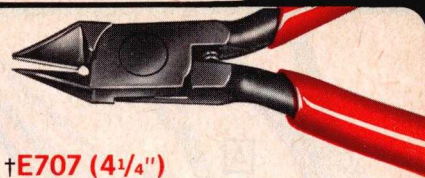
†E705 (4½")

End Flush Cutter Pliers. ¾" long jaws taper to provide a ⅜" wide end cutter. Cuts AWG #19 thru #22 hook-up wire.



†E710 (5½")

Flush Diagonal Cutter Pliers. Heavy duty pliers have ⅜" long blades. Cuts AWG #11 thru #14 electrician's wire.



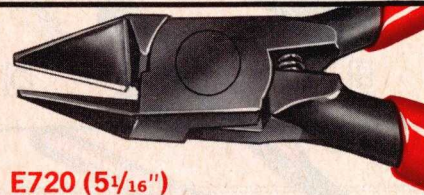
†E707 (4¼")

Flush Diagonal Cutter Pliers. Blade bottoms are flat and relief ground for added clearance. ⅞" long jaws taper to ⅜" tips. Cuts AWG #15 thru #17 wire.



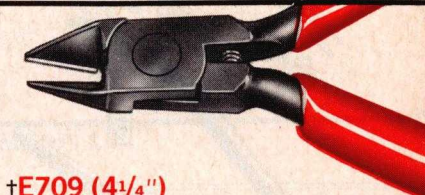
E714 (4½")

End Flush Cutter Pliers. Cutter jaws are offset 80° from handle. Cutter blade length is ⅜". Cuts AWG #18 hook-up wire.



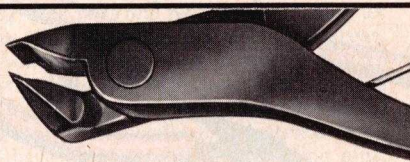
E720 (5½")

Semi-Flush Diagonal Cutter Pliers. This even heavier duty version of the E710 has ⅜" long blades that will handle AWG #8 thru #10 electrician's wire.



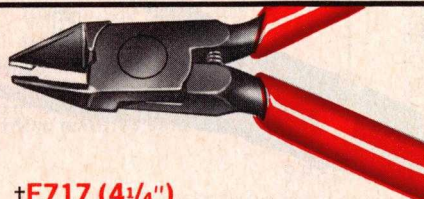
†E709 (4¼")

Flush Diagonal Cutter Pliers. Same design as E707 above except jaws are ⅞" long and taper to ⅜". Cuts AWG #15 thru #17 wire.



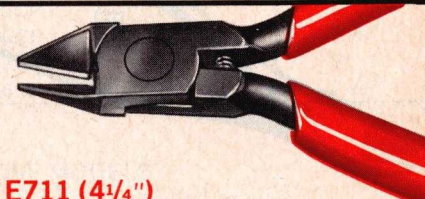
†E706B (6⅝")

End Flush Cutter Pliers. Head design same as E714 above, except cutter blade is ¼" long. Long, straight handle extends reach. Cuts AWG #18 hook-up wire.



†E717 (4¼")

True Flush Diagonal Cutter Pliers. Designed for ribbon-type wire cutting because of relief behind cutter edge.

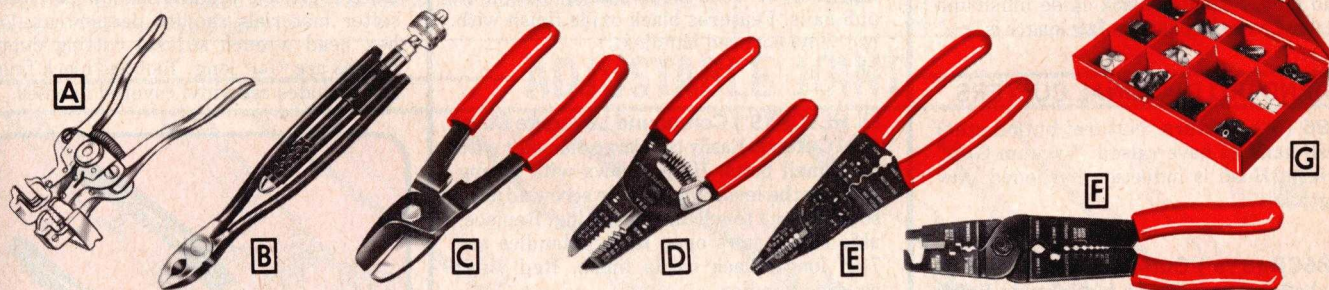


E711 (4¼")

Semi-Flush Diagonal Cutter Pliers. Jaws are ⅞" long and taper to ⅜". Cuts AWG #15 thru #17 wire.

†NOTE: Use only where true flush cut is required to prevent damage to cutter.

WIRE TWISTER/CRIMPERS/STRIPPERS



A GA116 (6¼") Wire Stripper. Removes ¼" to 1" insulation. Six openings for 8 wire sizes.

B GA311A (10½") Wire Twister/Cutter. Grips, cuts, twists wire up to .060" in diameter. Includes handy side cutter.

GA311C (10½") Wire Twister/Cutter. Same functions and specifications as GA311A above, except it also includes a spring loaded twist rod and knob for ease in operation.

C PWC80 (8¾") Cable Cutter. Ideal for cutting battery cables, welding cables and other soft metal cables.

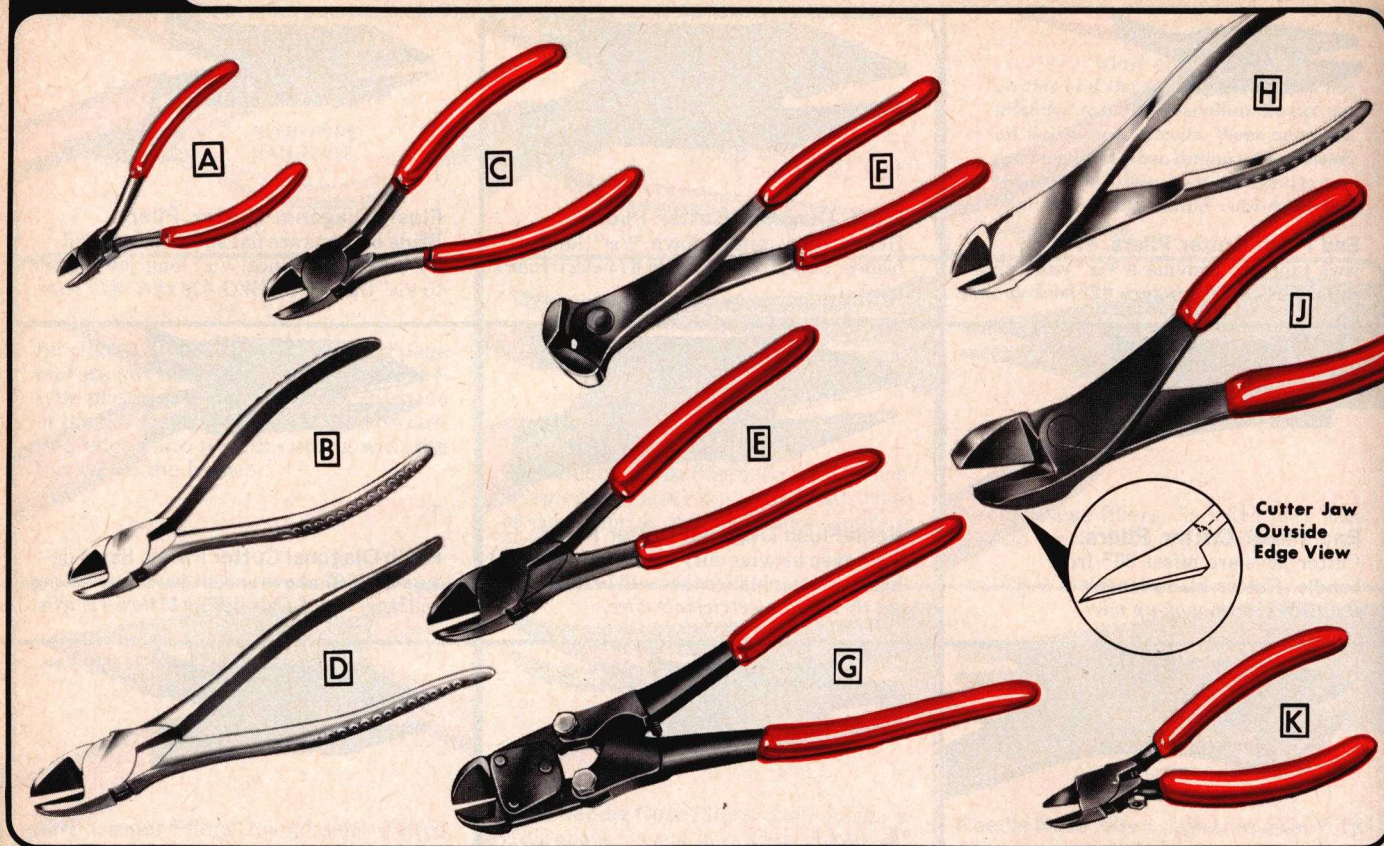
D PWC6 (6") Multi-Purpose Pliers. Six openings strip AWG wire, 10, 12, 14, 16, 18 and 20 and metric sizes 8.3, 5.3, 3.3, 2.0, 1.3 and .8 mm.

E PWC8 (8¼") Multi-Purpose Pliers. Wire stripper, cutter and bolt cutter. Wire size holes: 22-20, 18, 16, 14, 12, 10. Bolt size holes: 4-40, 5-40, 6-32, 8-32, 10-32, 10-24. Also has 3 insulated (12-10, 22-14, 17 mm) and one non-insulated crimp stations.

F PWC12 (10¼") Multi-Purpose Pliers. 12 different stations handle wire stripping, cutting, crimping and splicing operations. Crimps spark plug, coil and distributor terminals as well as insulated and non-insulated terminals. Strips 7 and 8 mm ignition wire and the following wire sizes: 10, 12, 14, 16, 18, 20 and 22.

G YA314 Wire Connector Kit. Includes 250 wire connectors in 5 styles. Use with PWC8 or PWC12 above. Connectors available in bags of 25 (bags of 10 for YA314-2). U.L. and C.S.A. approved. Kit includes:

Connector	Stock Number	Quantity	Wire Size (AWG)
Ring Tongue	YA314-1	25	22-18
	YA314-2	25	22-18
	YA314-5	25	16-14
	YA314-6	25	16-14
	YA314-10	15	12-10
¼" Tab	YA314-3	25	22-18
	YA314-8	25	16-14
	YA314-9	15	16-14
Pigtail	YA314-11	15	18-10
Butt	YA314-4	25	22-18
	YA314-7	25	16-14
Line Tap	YA314-12	5	18-14



CAUTION: Vinyl covered pliers handles are not intended to act as insulation. Do not use on live electric circuits. Wear approved eye protection when cutting wire or metal. When cutting wire, hold short end to prevent flying bits. Avoid cutting at tips where possible.

MIDGET DIAGONAL CUTTERS

A 184CP (4 1/4") Cutters. Cutter blades are hand filed. Features black oxide finish and red vinyl covered handles. Jaw length is 1 3/32."

STANDARD DIAGONAL CUTTERS

B 86 (6") Cutters. Natural buffed steel finish handles have raised "Vacuum Grip" pattern. Head is induction hardened. Jaw length is 3/4."

C 86CP (6 1/8") Cutters. Same design as 86 above, except it has black oxide finish and red vinyl covered handles. No handle pattern. 3/4" long jaws.

85CP (4 7/8") Cutters. Same design as 86CP above, except it is shorter and has 9/16" long jaws.

HEAVY DUTY DIAGONAL CUTTERS

D 87 (7 1/4") Cutters. Has full fashioned handles, long tapered head and induction hardened jaws. Smoothly polished head. Has raised "Vacuum Grip" handle pattern. Jaw length is 1 5/16."

E 87CP (7 1/4") Cutters. Same design as 87 above, except it has black oxide finish and includes red vinyl covered handles. No handle pattern. Jaw length is 1 5/16."

F 17CP (7 1/4") End Cutters. Jaw width is 1 5/16". Head design allows for close cutting. Can also be used with rolling motion to pull nails. Features black oxide finish with red vinyl covered handles.

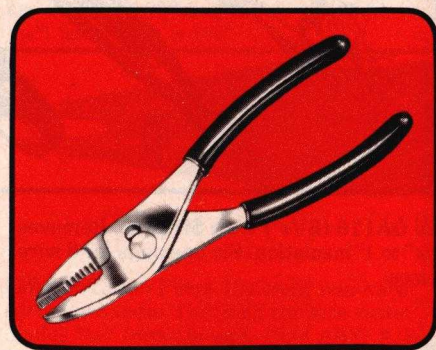
G HL9CP (9") Compound Leverage Diagonal Cutters. Easily cuts large diameter wire and small bolts. Hinged jaws with spring provide the leverage. Handle screw adjusts so jaws don't touch during cutting. Replaceable cutter jaws open to 3/8". Handles are 7 1/4" long. Black oxide finish. Red vinyl covered handles.

H 387 (7 1/4") High Leverage Diagonal Cutters. Over capacity jaws, hand edged for accuracy. Spring tempered handles are natural finish and have "Vacuum Grip" pattern. Polished head. Jaw length is 3/4."

387CP (7 1/4") Diagonal Cutters. Same design as 387 above, except it features a black oxide finish and red vinyl covered handles. No handle pattern.

J 388CP (7 23/32") Curved Diagonal Cutters. Has 1 1/8" jaw width and 1 9/16" jaw length. Specially heat treated for extra strength. Features black oxide finish and red vinyl covered handles.

K 860CP (6 1/2") True Flush Plastics Cutters. Has depth of cut adjustment feature. Hard materials require shallow cut, while softer materials require deeper cut. 1/16" hex head wrench adjusts cutting depth. Blades are 5 7/64" long. Tool has black finish and includes red vinyl covered handles.



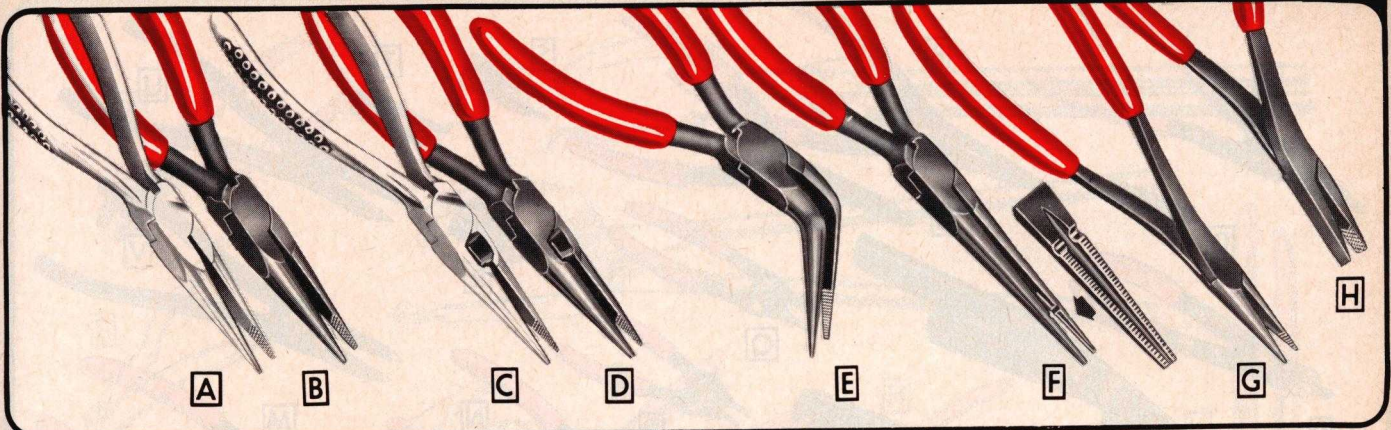
PLIERS GRIPS

Black vinyl grips come in sets of 2.

Stock No.	I.D.	Length	Fits Current and/or Previous Pliers
PG3	1/4"	2 3/4"	45, 94, 184
PG4	5/16"	4 3/4"	9C, 46C, 47, 60C, 85, 90A, 95, 137C, 497C
PG5	3/8"	5"	17C, 49, 57R, 87, 87C, HD59, HL9

NEEDLE NOSE

Pliers



CAUTION: Vinyl covered pliers handles are not intended to act as insulation. Do not use on live electric circuits.

STANDARD MODELS

	Stock No.	Jaw Length	Overall Length
Fully polished, natural steel finish with "Vacuum Grip" handles.	A 96	2 1/4"	7 1/8"
	B †196	2 1/4"	7 1/8"
Black oxide finish with red vinyl covered handle grips.	C 94CP	27/32"	4 1/2"
	C 95CP	1 11/16"	6"
	C 96CP	2 1/4"	7 1/8"
	C 97CP	3 1/4"	8"
	D †196CP	2 1/4"	7 1/8"

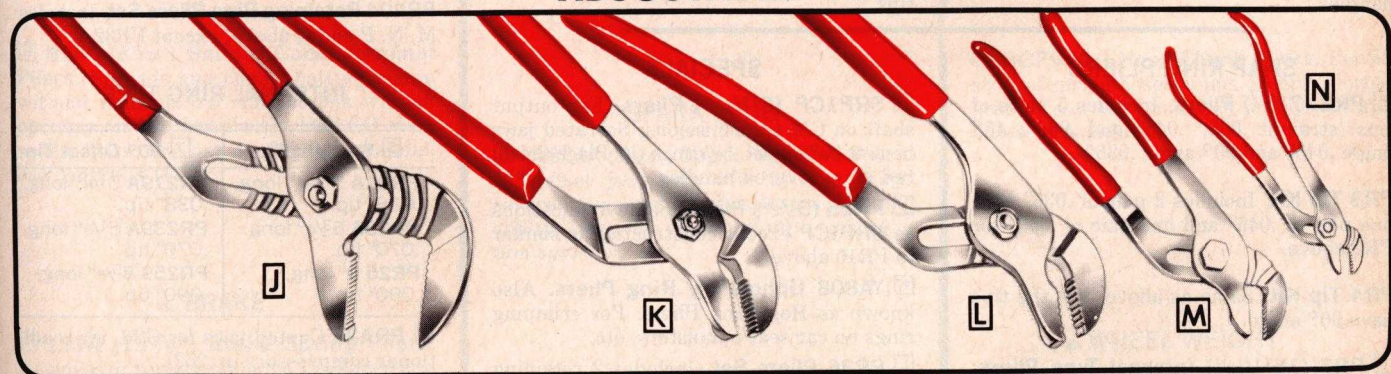
†Also features side cutters.

SPECIAL PURPOSE MODELS

Each includes black oxide finish end red vinyl covered handles.

	Stock No.	Jaw Length	Jaw Width	Overall Length
Bent needle nose pliers, 90° angle jaws.	E 497CP	3 3/16"	—	6 5/8"
Pin gripping pliers with matched parallel and cross grooves in jaws.	F 597CP	3 3/16"	—	7 15/16"
Short needle nose pliers.	G 60CP	1 5/16"	—	7 3/4"
Duck bill pliers designed for aviation mechanics pulling locknut safety wires. Finely serrated jaw tips.	H 61CP	1 5/16"	5/16"	7 3/4"

ADJUSTABLE JOINT

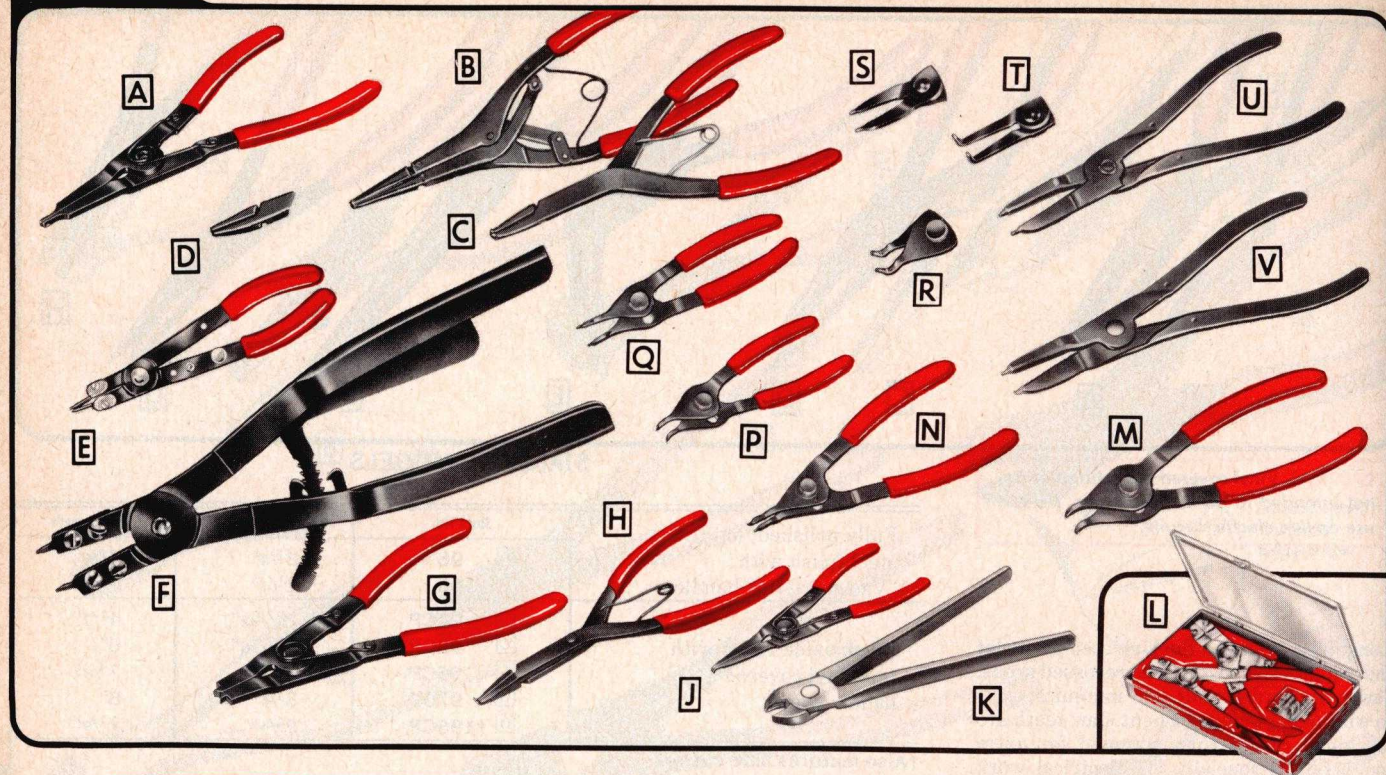


All models at right feature red vinyl covered handles. Jaw teeth are machined deep (except 9P) for firm bite... the adjustable jaw interlocks — it can't jump from its channel when in use, and the jaws always remain parallel.

	Stock No.	Jaw Positions	Maximum Parallel Opening	Overall Length
Large Models	J HL120P	11	5 1/2"	20"
	J HL116P	11	4 1/4"	16"
	J HL112P	6	2 1/8"	12"
Medium Models	K ▲9P	4	1 3/8"	8 3/4"
	L ●90AP	5	1 3/8"	9 1/4"
	L ■91CP	5	1 3/8"	9 1/4"
Small Models	M HL16P	5	1"	6 1/2"
	N HL14P	4	1/2"	4 1/2"

- ▲ Slip joint style.
- Nickel-chrome finish.
- Black oxide finish.

HL404 Set. Includes HL112P, HL116P, HL14P and HL16P Pliers in a plastic tray.



CAUTION: Vinyl covered pliers handles are not intended to act as insulation. Do not use on live electric circuits. Always wear approved eye protection when using Lock, Snap or Retaining Ring Pliers.

LOCK RING PLIERS

A PR16 (8³/₄") Pliers. Jaws expand from ³/₁₆" minimum to 1¹/₂" maximum. Notched tips are ³/₁₆" wide. 3" between handles. Black finish; red vinyl covered handles.

Fed. Specs. GGG-P-471D applies to the following 4 pliers.

B PJ10CP (10³/₁₆") Pliers. Jaws remain open from minimum opening of .150" to a maximum of 1¹/₄" 3¹/₄" between handles. Black oxide finish with red vinyl covered handles.

C 70CP (8⁷/₈") Pliers. Jaw tips at right angles are serrated on outside. Spring holds jaws closed. Black oxide finish with red vinyl covered handles.

700CP (14") Pliers. Same design as 70CP above, except longer.

D 71CP (8⁷/₈") Pliers. Same design as 70CP above, except with ³/₃₂" wide straight tips.

SNAP RING PLIERS

E PR2 (7¹/₂") Pliers. Includes 5 pairs of tips: straight .035", .045" and .060"; 45° angle .045" and 90° angle .035".

PR3 Tip Kit. Includes 2 pair of .035" tips, one pair of .045" and one pair of .060" for PR2 above.

PR4 Tip Kit. Same as above, but the tips have 90° angle.

F PR7 (15¹/₁₆") Internal Type Pliers. For rings up to 6" Tip diameter. 120" Black finish. Interchangeable tips available in pairs: **PR7-1** Straight Tip; **PR7-2** 45° Tip, .120" diameter; **PR7-3** 90° Tip, .120" diameter.

PR8 (15¹/₁₆") External Type Pliers. Same design as PR7 but external. Interchangeable tips same as PR7.

G PR40 (8¹/₈") External Type Pliers. Maximum jaw spread is 1¹/₁₆". For locating bearings on shafts, differentials and transmissions. Has black industrial finish and red vinyl covered handles.

SPECIALS

H SRP1CP (8¹⁵/₁₆") Pliers. For output shaft on GM transmissions. Serrated jaws bent at 90° angle. ¹/₁₆" thick tip. Black finish; red vinyl covered handles.

I PR15 (5¹/₂") Pliers. Same applications as SRP1CP except construction is similar to PR16 above.

K YA808 Upholstery Ring Pliers. Also known as Hog Ring Pliers. For crimping rings on car seat upholstery, etc.

L PR36 Pliers Set. Includes 2 retaining ring pliers, **PR37** (internal) and **PR38** (external), plus **PR5** Tip Kit. Kit includes: 2 pairs straight .045" tips; plus 2 each straight .060", 90° angle .035" and 45° angle .045" Pliers 6¹/₄" long. Chrome with red vinyl grips. Spring-return handles.

Spring-Rivet Kits. Include spring and rivets to convert **I** and **R** at right so their handles always return to working position.

PRS21. For PR21A, 22A, 23A, 24A, 219A, 229A, 239A and 249A.

PRS25. For PR25, 26, 259, 269, PRA25 and PRA26.

RETAINING RING PLIERS CONVERTIBLE TYPE

Stock No.	Tip Style	Tip Diameter	Overall Length
M PR349A	90°	.070"	8"
N PR34A	Straight	.070"	8"
P PR129A	90°	.038"	5 ³ / ₄ "
Q PR12A	Straight	.038"	5 ³ / ₄ "
Q PR32A	Straight	.047"	5 ³ / ₄ "
R PR27	40°	.070"	8"

PR404 Retaining Ring Pliers Set. Includes M, N, P and Q above, except PR32A.

INTERNAL RING TYPE

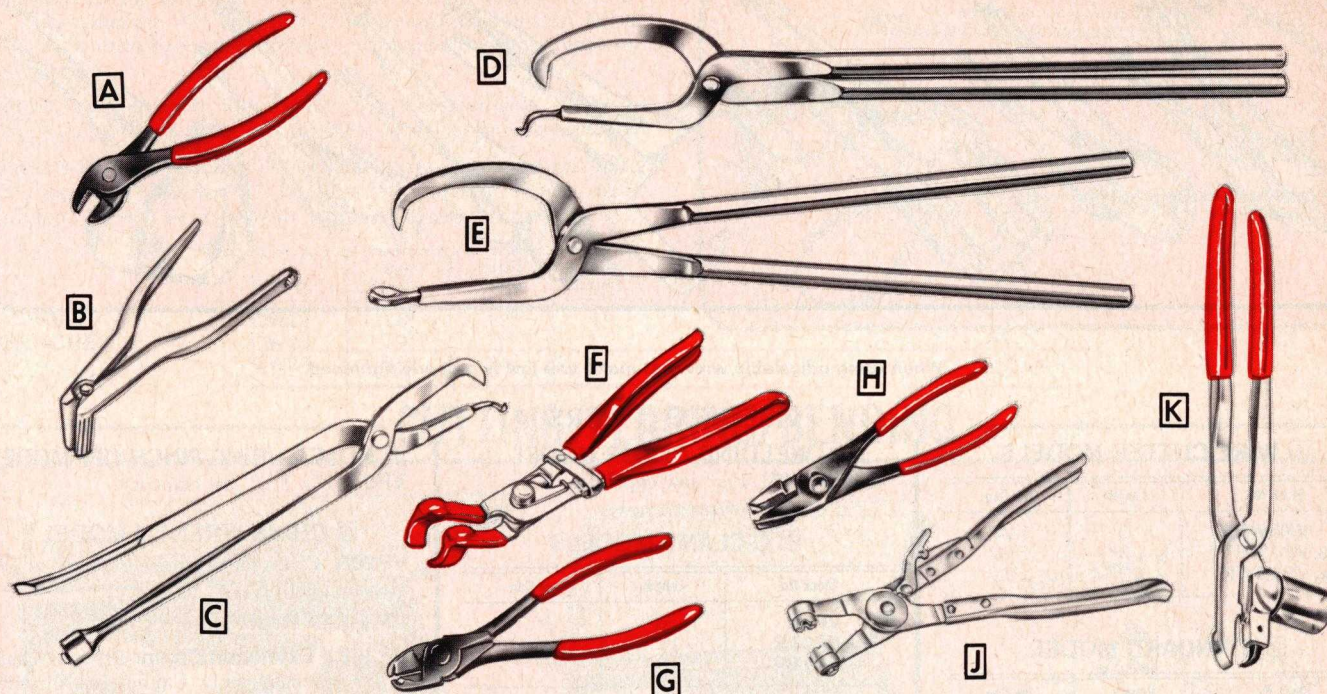
S Straight Tip	T 90° Offset Tip
PR21A 5 ⁷ / ₁₆ " long, .038" tip.	PR219A 5 ¹ / ₄ " long, .038" tip.
PR23A 6 ³ / ₄ " long, .070" tip.	PR239A 6 ¹ / ₂ " long, .070" tip.
PR25 9" long, .090" tip.	PR259 8 ⁵ / ₈ " long, .090" tip.

U PRA25 Canted jaws for G.M. air conditioner compressors (p. 253).

EXTERNAL RING TYPE

S Straight Tip	T 90° Offset Tip
PR22A 5 ⁷ / ₈ " long, .038" tip.	PR229A 5 ⁵ / ₈ " long, .038" tip.
PR24A 7" long, .070" tip.	PR249A 6 ³ / ₄ " long, .070" tip.
PR26 9 ³ / ₈ " long, .115" tip.	PR269 9" long, .115" tip.

V PRA26 Canted jaws for G.M. air conditioner clutch/pulley (p. 253).



CAUTION: Vinyl covered pliers handles are not intended to act as insulation. Do not use on live electric circuits.
▲ Wear approved eye protection when using these pliers.

▲ BATTERY

A 208CP (7³/₄") Angle-Nose Battery Pliers. Round nose protects battery from damage. Jaws offset 30° for better leverage and turning angle.

B B260 (7³/₈") Battery Cable Terminal Pliers. Spreads and cleans battery clamp without damage. ⁵/₁₆" double hex wrench opening on one handle for DELCO side-saddle bolts. Pry bar on the other handle. Jaw length is 1⁵/₈".

▲ BRAKE

C 131A (13¹/₄") Brake Spring Pliers. Removes or replaces Bendix, Lockheed and other hydraulic and mechanical brake springs. Steel hook on jaw is replaceable. Handles provide socket type spring remover and hook end replacer.

31-3A Replacement Hook for above.

D 231 (20¹/₄") Truck Brake Spring Pliers. Services heavy brake shoe return springs on some models of Huck, Wagner, Lockheed and other trucks. Steel hook on jaw is replaceable.

231-3 Replacement Hook for above.

E 331 (20³/₄") Truck Brake Spring Pliers.

Designed like 231 above, except there is a slotted spoon in place of pin hook to handle most large trucks, tractors and heavy equipment.

SPARK PLUG

F YA824A (9¹/₂") Spark Plug Wire Pliers.

45° offset jaws grip wire at boot. Vinyl covered jaws and handles assure gripping ability. *Use only on automotive type ignition systems.*

▲ HOSE CLAMP

G HCP48BP (8") Corbin Hose Clamp Pliers. Designed to handle ³/₄" to 2" diameter clamps. Jaws close to within ¹/₁₆". Black finish with red vinyl covered handles.

HCP46BP (6¹³/₃₂") Corbin Hose Clamp Pliers. Same design as HCP48BP above, except it's for less than ³/₄" diameter clamps. Jaws close to within ¹/₁₆".

H A174CP (7¹/₁₆") Hose Clamp Cutter.

For cutting radial clamps used on radiator hoses as original equipment. Bow-type plastic grip handles. *Not for cutting stainless steel bands.*

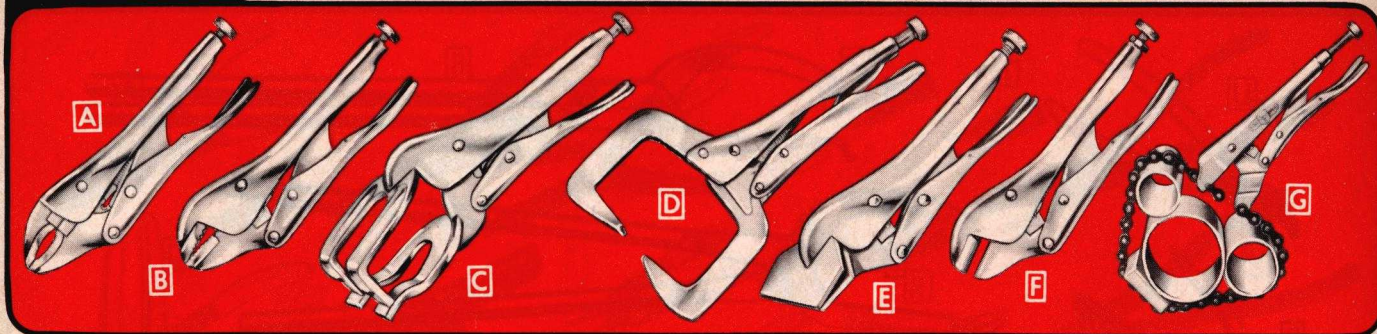
J HCP9 (9") Hose Clamp Pliers. For all sizes of spring hose clamps. Deeply slotted jaws swivel 180° and lock in any of three different positions.

▲ WHEEL WEIGHT

K WWP12P (11¹³/₁₆") Wheel Weight Pliers. Set of cutters in front of riveted joint for increased cutting power. 1¹/₂" long plastic hammer tip for access to recessed weights... it minimizes changing the spring clip tension of the weights. The replaceable hook tips are designed for a secure grip of the weights. Hammer tip is also replaceable. Red vinyl covered handles.

WWP12-3 Replaceable Plastic Hammer Tip.

WWP12-4 Replaceable Hook Tip.



CAUTION: When using adjustable wrenches make sure jaw is properly tightened.

A WIRE CUTTER MODELS

Stock No.	Length	Jaw Cap.
VP5WRB	5"	1 1/4"
▲ VP7WR	7"	1 3/8"
▲ VP10WR	10"	1 5/8"

B STANDARD MODEL

Stock No.	Length	Jaw Cap.
▲ VP7R	7"	1 3/8"
▲ VP10R	10"	1 5/8"

WISE-GRIP® PLIERS

C WELDING CLAMP MODEL

▲VP9R (9"). 1 5/8" jaw capacity.

D C-CLAMP MODELS

Stock No.	Length	Jaw Cap.
VP6R	6"	2"
VP11R	11"	3 1/2"
VP18R	18"	7"

E BENDING TOOL MODEL

VP8R (8"). 3 1/2" jaw width. Throat depth 1 3/4."

F HOSE/TUBING PINCH-OFF MODEL

VP07 (7"). 1 3/8" jaw capacity.

G CHAIN WRENCH MODEL

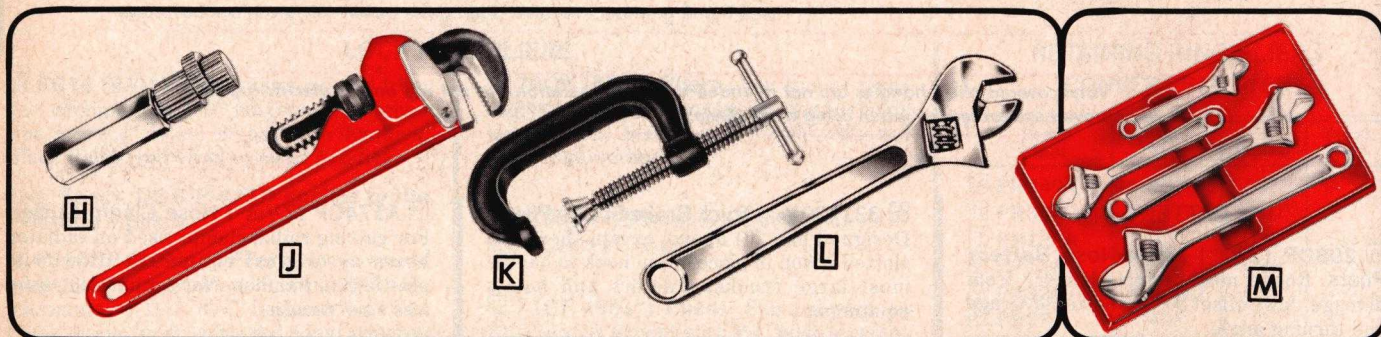
VP20R. Chain has a working length of 19". Handle portion is 8" long.

VP20REP Replacement Chain.

VP20EX Extension Chain. 18" long chain is for extension only. Cannot link up with wrench itself.

WISE-GRIP® — tradename Petersen Mfg. Co.

▲Fed. Specs. GGG-P-471D apply.



CAUTION: Pipe wrenches are intended for use on pipes, never on nuts and bolts. When using adjustable wrenches make sure jaw is properly tightened. For better control, always pull the wrench whenever possible; do not push.

PIPE WRENCHES

H EXTERNAL MODELS

Jaws are made of hardened alloy steel. Fed. Specs. GGG-W-651D apply.

Stock No.	Length	Jaw Cap.
PW6B	6"	3/4"
PW8B	8"	1"
PW10B	10"	1 1/2"
PW12B	12"	2"
PW14B	14"	2"
PW18B	18"	2 1/2"
PW24B	24"	3"
PW36B	36"	5"

J INTERNAL MODELS

Center knurled section rotates in either direction to grip inside wall of pipe. Fed. Spec. GGG-W-643A.

Stock No.	Length	N.P. Size
PWN12	3 3/4"	3/8"
PWN16	3 3/4"	1/2"
PWN24	3 3/4"	3/4"
PWN32	3 3/4"	1"

PWN904 Set. Includes above 4 tools in buttoned plastic case.

CLAMPS

K C-CLAMPS

Replaceable steel swivels. High tensile steel screws and swivels.

Stock No.	Clamp Capacity	Throat Depth	Screw Dia.
CL402	0"-2"	21/8"	1/2"
CL403	0"-3"	27/16"	1/2"
CL404	0"-4"	27/8"	5/8"
CL406	0"-6"	3 3/4"	3/4"
CL408	0"-8"	4 3/4"	3/4"
CL410	3"-10"	5 5/8"	3/4"
CL412	4"-12"	5 7/8"	7/8"

L ADJUSTABLE WRENCHES

Designed with thin jaws to fit tight quarters. Black or chrome finish available. Fed. Specs. GGG-W-631A apply.

■ D704 Set. D76, D78, D710, D712 in plastic tray. D903 Set. D76, D78, D710. D906 Set. D74 thru D715.

BLACK	CHROME	Length	Jaw Cap.	BLACK	CHROME	Length	Jaw Cap.
Stock No.	Stock No.			Stock No.	Stock No.		
DA24	D74	4"	1/2"	DA212	D712	12"	1 5/16"
DA26	D76	6"	3/4"	DA215	D715	15"	1 11/16"
DA28	D78	8"	1 5/16"		D718	18"	2 1/16"
DA210	D710	10"	1 7/8"		D724	24"	2 1/2"

STRAP & CHAIN

Specials/Tubing

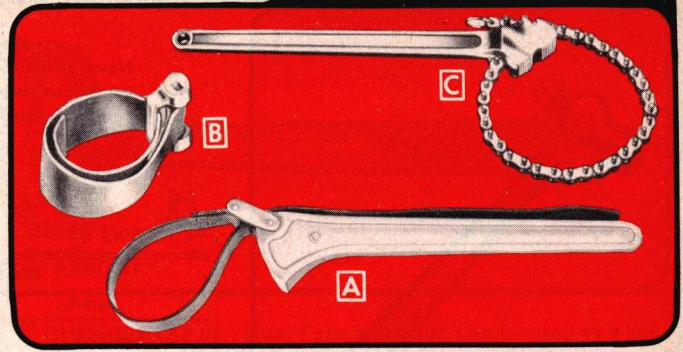
A YA826 Strap Wrench. For irregular shaped objects from 1" to 5" in diameter. 22" long and 1" wide urethane coated nylon strap has a tensile strength of 1300 lbs. 12" long lightweight aluminum handle.

YA836 Strap Wrench. For 1" to 6 1/2" diameter objects. 22" long, 1" wide strap. Tensile strength, 6000 lbs. 18" long aluminum handle.

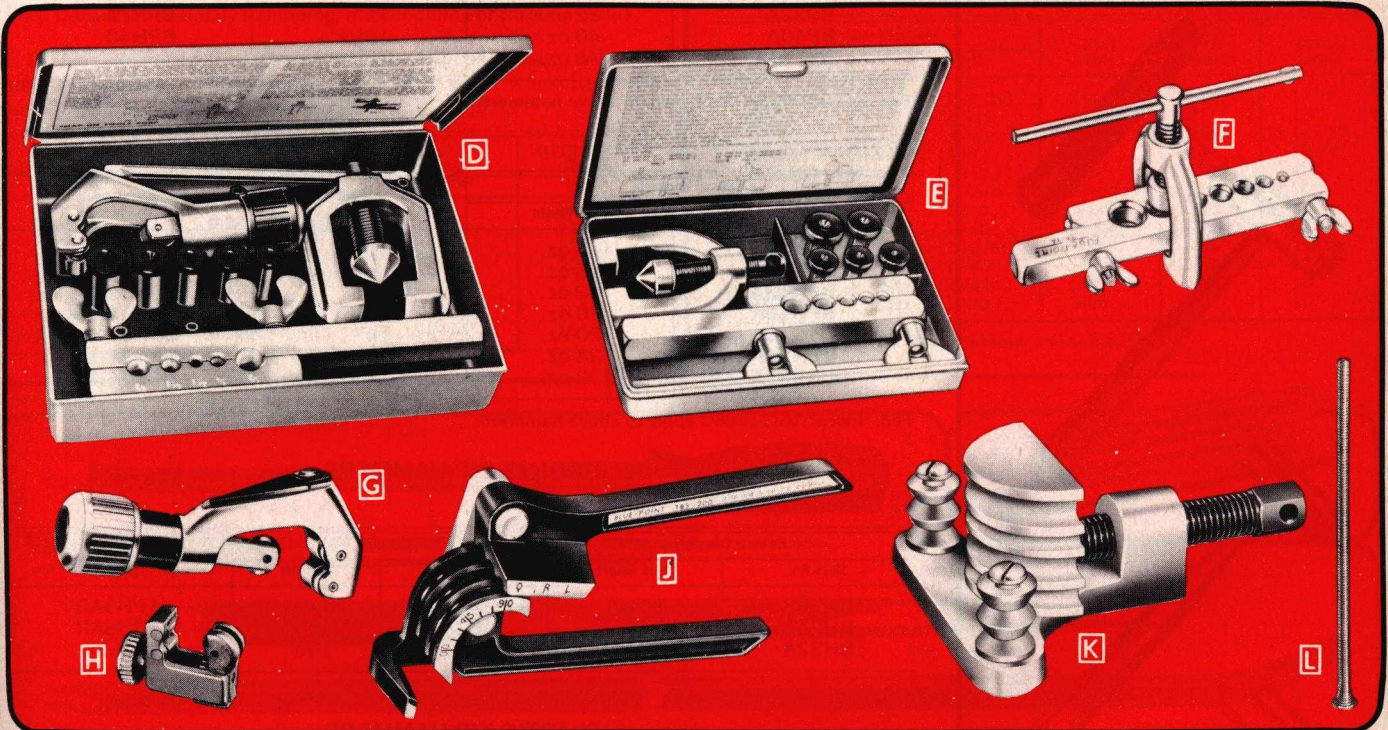
B A91B Strap Wrench. For irregular shaped objects from 1" to 6" in diameter. This wrench features two different square drive openings...it can be used with 3/8" or 1/2" square drive handles.

CHAIN WRENCHES

Stock No.	Chain Length	Handle Length	Diameter Capacity
CW12	16"	12"	4"
CW15	19"	15"	5"
CW24	23"	24"	6"



CUTTING/FLARING/BENDING



D TF528C Tube Cutting and Double Flaring Set. Contains TC28A Tubing Cutter and TF5 Double Flaring Set described on this page. Set includes a flaring bar, a rod handle, a yoke and 5 adaptors — 3/16", 1/4", 5/16", 3/8", and 1/2". Set is packaged in a plastic box.

E TF5 Double Flaring Tool Set. Makes double or single flares on soft steel, brass or aluminum tubing from 3/16" to 1/2" O.D. Makes a smooth-fitting, crack-free 45° flare. Set includes 5 adaptors, a yoke assembly, a bar assembly and a handle packaged in a plastic box. Instructions for use are on the cover.

TFM5 Metric Double Flaring Tool Set. Same design as TF5 above, except it handles tubing with an O.D. from 4.75 mm to 10 mm. Set includes a yoke assembly, bar assembly, handle and 5 adaptors — 4.75 mm, 5 mm, 6 mm, 8 mm and 10 mm. Packaged in a plastic case with instructions for use on the cover.

F TF7A Single Flaring Tool. Designed for 3/16", 1/4", 5/16", 3/8", 7/16" and 5/8" tubing...soft brass, copper or aluminum. Slip-on yoke won't twist or turn. Open bottom allows flares to be made in limited access areas.

G TC28A Tubing Cutter. Cuts soft metal tubing ranging from 1/8" to 1" in diameter. The cutter has O.D. capacity of 1/8" to 1 1/8". Micrometer type adjustment. Retractable locking reamer blade. Cutter wheel is easily replaceable.

TC28A1 Standard Cutting Wheel.

TC28A3 Heavy Duty Cutting Wheel.

H TC123A Compact Tubing Cutter. Handles tubing from 1/8" to 3/8" O.D. Can be used where clearance around tubing is less than 1 3/8". 1 1/2" long when closed and 2" long when open; feed knob is 7/8" in diameter.

TC123A1 Extra Cutter Wheel.

I TBS200 Multi-Purpose Tube Bender. Makes left, right or offset bends up to a 90° angle. Handles 3/16", 1/4", 5/16" and 3/8" (4 mm, 6 mm and 8 mm) copper, aluminum and stainless steel tubing. Aluminum unit is 8 1/4" long closed and 14 1/2" long when opened.

K GA244 Small Diameter Tube Bender. Allows smooth bend without denting the tubing. Makes bends to 180° and 1 1/16". Handles 3/16", 1/4", and 5/16" steel and copper tubing and 3/8" copper tubing. Reversible forming pad. Polypropylene posts minimize friction.

L TBS106 Tube Bender Set. Six units help bend tubing by hand in any desired shape without collapsing the tubing.

Stock Number	Tubing Diameter	Overall Length
TBS1	1/4"	10"
TBS2	5/16"	10 3/8"
TBS3	3/8"	10 3/8"
TBS4	7/16"	12 1/8"
TBS5	1/2"	12 3/8"
TBS6	5/8"	12"

Hammers

STANDARD & SPECIAL

CAUTION: Wear approved eye protection. Strike squarely. Avoid glancing blows. Never strike this tool with or against another striking tool. Striking any hard surface can cause chipping, possibly resulting in eye or other injury. Discard immediately if chipping, mushrooming or cracking occurs.

BALL PEEN HAMMERS

[A] Hickory handle.

Hammer Complete		Handle Length	Replacement Handle Stock No.
Stock No.	Head Weight		
BP2A	2 oz.	11"	BPH2A
BP4A	4 oz.	11"	BPH4A
BP8A	8 oz.	12"	BPH8
BP12A	12 oz.	12"	BPH12
BP16A	16 oz.	14 1/2"	BPH16
BP20A	20 oz.	15"	BPH20
BP24A	24 oz.	15"	BPH24
BP32A	32 oz.	15"	BPH24
BP40A	40 oz.	15 1/2"	BPH40
BP48A	48 oz.	15 1/2"	BPH40

Fed. Specs. GGG-H-86C apply to above hammers.

[B] Fiberglass handle, black vinyl grip.

Hammer Complete		Overall Length	Replacement Handle
Stock No.	Head Weight		
BPN4A	4 oz.	10"	BPN4-1
BPN8A	8 oz.	11"	BPN8-1
BPN12A	12 oz.	12"	BPN12-1
BPN16A	16 oz.	13"	BPN16-1
BPN20A	20 oz.	14"	BPN16-1
BPN24A	24 oz.	14"	BPN24-1
BPN32A	32 oz.	16"	BPN24-1

Fed. Specs. GGG-H-86C apply to above hammers.

BRONZE TIP HAMMERS

[C] Hickory handle, 11 5/8" long.

Hammer Complete		Head		Replacement Handle
Stock No.	Head Weight	Length	Diameter	
BH16A	16 oz.	3"	1 1/4"	91PH3AR
BH24A	24 oz.	4"	1 1/4"	91PH3AR
BH32A	32 oz.	4 1/2"	1 3/8"	BH32-2R

PLASTIC TIP HAMMERS

[D] Hickory handle, 11 5/8" long.

Hammer Complete		Extra Trip		Replacement Handle
Stock No.	Head Weight	Tip No.	Diameter	
BH91B	8 oz.	91PH2A	1 1/4"	BH91A3R
BH92B	16 oz.	92PH2A	1 3/8"	BH92A3R

SOFT FACE HAMMER

[E] **BH232 Two-Pound Hammer.** The 13" long fiberglass handle has red plastic, shock absorbing grip. Includes two replaceable tips... medium and hard. An optional nylon tip is also available to withstand even harder use. Tip diameter is 1 5/8". Fed. Specs. GGG-H-33A apply.

BH232-2. Rubber-like medium tip.

BH232-3. Plastic-like hard tip.

BH232-4. OPTIONAL nylon tip.

CLAW HAMMER

[F] **BC16A.** 13 1/2" long. Head weight is 16 oz., face diameter is 1". Drives and removes unhardened nails.

BC16A1. Replacement handle.

OTHER SPECIAL HAMMERS

Dead Blow Hammers..... page 155

Tire Hammers..... page 220

Body Hammers..... page 230

DEAD BLOW HAMMERS

Hammers/Prybars



WARNING: • The hammers on this page are not intended for use on any liquid oxygen applications. This could result in the rupture or ignition of hammer material. • Always wear approved eye protection. • When using the ball peen models, strike squarely. Avoid glancing blows. Never strike with or against other striking tools. Striking any hard surface can cause chipping, possibly resulting in eye or other injury. Discard immediately if chipping, mushrooming or cracking occurs.

A COMPOTHANE® Ball Peen Hammers. Special design delivers sustained impact and maximum striking force to the work. Reduced rebound effect when striking object.

Hammer Complete		Face Diameter	Overall Length
Stock No.	Head Weight		
BPD8A	8 oz. (1/2 lb.)	1"	10 3/4"
BPD12A	12 oz. (3/4 lb.)	1 1/8"	11 3/4"
BPD16A	16 oz. (1 lb.)	1 3/16"	12 7/8"
BPD24A	24 oz. (1 1/2 lb.)	1 1/2"	13 1/4"
BPD32A	32 oz. (2 lb.)	1 11/16"	14"
BPD32A	32 oz. (2 lb.)	1 11/16"	10 1/2"
BPD40A	40 oz. (2 1/2 lb.)	1 11/16"	16 1/4"

B BHD132A (32 oz.) Dual Face Hammer. Can be used as a hand drilling hammer. Face diameters are 1 1/16" and 1 5/16". Overall length is 10 1/2".

C COMPOTHANE® Hammers. One-piece construction. Heads are shot-filled.

Hammer Complete		Head Style	Face Diameter	Overall Length
Stock No.	Head Weight			
BC1A	24 oz. (1 1/2 lb.)	Std.	1 3/4"	11 1/2"
BC2A	32 oz. (2 lb.)	Std.	2"	13"
BC3A	48 oz. (3 lb.)	Std.	2 1/2"	14 1/2"
BC4A	64 oz. (4 lb.)	Std.	2 3/4"	15 3/4"
BC140A	14 oz. (7/8 lb.)	Std.	1 1/2"	10"
BC7A	7 1/2 lb.	Sledge	2 3/4"	20"
BC112A	12 lb.	Sledge	3 1/2"	30"
BC114A	14 lb.	Sledge	3 1/2"	36"
BCX1A	24 oz. (1 1/2 lb.)	Slim	1 1/4"	11"
BCX2A	28 oz. (1 3/4 lb.)	Slim	1 1/2"	12 1/2"
BCX3A	36 oz. (2 1/4 lb.)	Slim	1 3/4"	13"
BCX80A	8 oz. (1/2 lb.)	Slim	1"	10"

COMPOTHANE® is a Reg. Trademark of C.E.S. Corp.

PRYBARS



CAUTION: Never substitute a prybar with a screwdriver. Always wear approved eye protection when using prybars.

D PRYBARS with HANDLES

These light weight prybars are equipped with a plastic screwdriver-type handle. The handle offers a comfortable grip as well as providing powerful leverage.

Stock No.	Square Shank	Tip Width	Length
SPB12	3/8"	5/8"	12"
SPB18	7/16"	25/32"	18"
SPB24	1/2"	13/16"	24"

E PRYBARS

Snap-on prybars feature a "built-in" fulcrum at the head of the prybar. This "rolling head" fulcrum provides the user with more leverage and easy installation into various prying applications.

Stock No.	Stock	Length	Stock No.	Stock	Length
650	5/16"	6"	1650	9/16"	16"
1250	7/16"	12"	2050	1 1/16"	20"

F PBS704 Set. Includes above four prybars in plastic tray.

G PINCH BARS

Stock No.	Stock	Edge	Length
1515	5/8"	13/16"	15"
1658A	1/2"	5/8"	16"
2420	3/4"	15/16"	20"
2430	3/4"	7/8"	30"
2434	3/4"	3/4"	22"
2438	3/4"	7/8"	38"
2842	7/8"	1"	42"

H SLATEBAR

Stock No.	Stock	Edge	Length
3260	1"	1 1/2"	60"



SEE SAFETY GOGGLES AND GLASSES ON PAGE 39

CAUTION: Always wear approved eye protection when using punches or chisels. Never use punches or chisels with chipped or mushroomed ends; dress to original shape with a hand file. Use proper size punch; hold it in direct line to pin.

CHISELS

A FLAT CHISELS

These flat chisels are perfectly balanced. They feature hand-ground cutting edges, beveled at the best angle for long edge life and fast cutting on average type of work. Whenever necessary, these flat chisels can be quickly re-edged with a file.

Stock No.	Hex Size	Edge	Length
▲ PPC812A	5/16"	13/32"	5 1/2"
▲ PPC816A	7/16"	1/2"	6"
▲ PPC820A	1/2"	5/8"	6 1/2"
▲ PPC824A	5/8"	3/4"	7 1/4"
PPC828A	11/16"	7/8"	8"
▲ PPC832A	1"	1 1/32"	9"

▲ Fed. Specs. GGG-C-313C apply.

B CAPE CHISELS

Stock No.	Hex Size	Edge	Length
PPC13A	5/16"	1/4"	5 5/8"
PPC14A	3/8"	5/16"	6"

C ROUND NOSE CAPE CHISEL

Stock No.	Hex Size	Edge	Length
PPC12A	3/8"	5/16"	6"

D DIAMOND POINT CHISELS

Stock No.	Hex Size	Edge	Length
PPC15A	7/16"	7/32"	6"
PPC19A	3/8"	1/8"	5 3/4"

E CHISEL AND PUNCH HOLDER

PPC5 Holder. Grips any tool or other item up to 1" in diameter. Insert the tool to be held and tighten the handle to force the tool against the plastic coated head. Overall length is 6 15/16".

SPECIAL FEATURES OF CHISELS AND PUNCHES



The anvil end or heads on all Snap-on chisels and punches are machined to a modified *PARABOLIC CURVE*. This type of head design concentrates the applied striking force to the center of the tool head to slow metal displacement at the periphery (curve) of the tool. The *PARABOLIC CURVE* slows the occurrence of "mushrooming," thus slowing down chipping and splitting.



The tough steel alloy is forged, machined, then heat treated for uniform hardness. The hardness of the striking head, however, is reduced to help increase toughness and add qualities that result in a slower mushrooming of the striking surface.

PUNCHES

F CENTER PUNCHES

These punches are forged from steel, heat treated for hardness.

Stock No.	Hex Size	Point	Length
†PPC3A	5/16"	1/8"	5"
PPC4A	7/16"	3/16"	6"
†PPC6A	5/8"	5/16"	7"

G PIN PUNCHES

After using a starter punch to loosen the pin or bolt, finish the removal job with one of the pin punches listed below. Shafts are not tapered.

Stock No.	Hex Size	Point	Length
†PPC103A	9/32"	3/32"	4 1/4"
†PPC104A	5/16"	1/8"	4 3/4"
†PPC105A	3/8"	5/32"	5"
†PPC106A	3/8"	3/16"	5 1/4"
†PPC108A	7/16"	1/4"	5 3/4"
†PPC110A	1/2"	5/16"	6 1/4"

H LONG TAPERED PUNCHES

These long tapered punches are ideal for all kinds of lining up work.

Stock No.	Hex Size	Point	Length
†PPC905A	3/8"	3/16"	8"
†PPC908A	7/16"	1/4"	8 1/2"
†PPC910A	1/2"	5/16"	9"
†PPC912A	9/16"	3/8"	9 1/2"

I STARTER PUNCHES

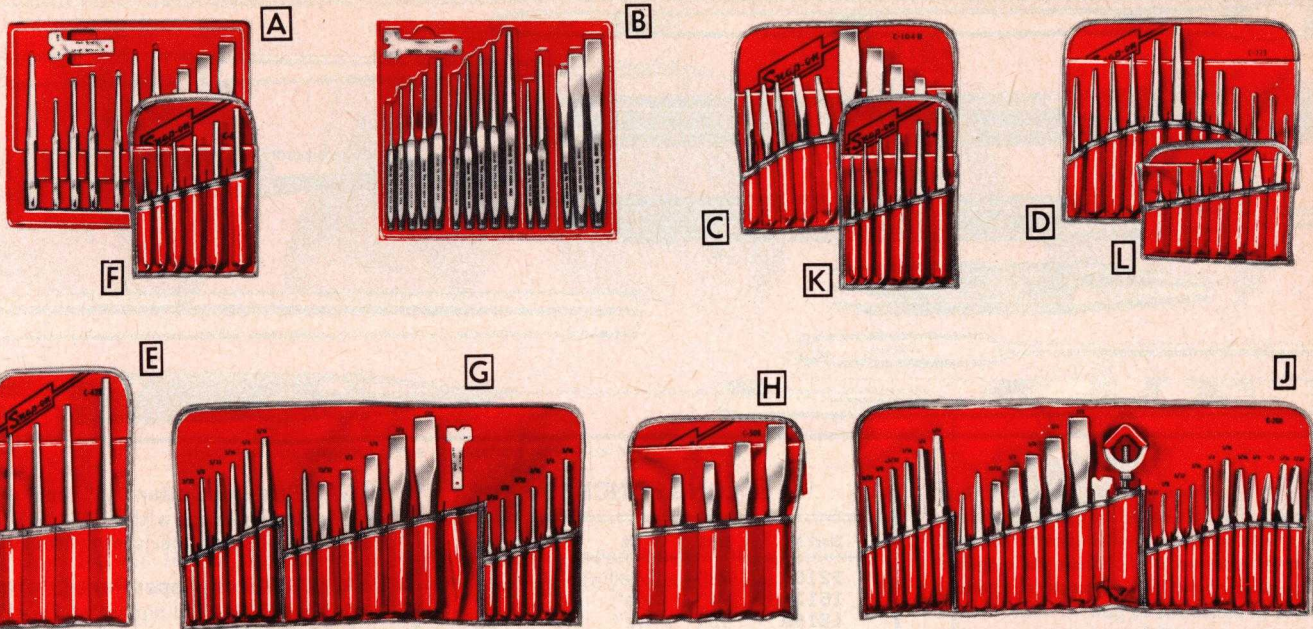
When driving out pins and bolts, start the job with one of the starter punches listed below. Finish the job with a pin punch. Starter punch shaft gradually tapers.

Stock No.	Hex Size	Point	Length
†PPC203A	5/16"	3/32"	5 1/4"
†PPC204A	3/8"	1/8"	5 3/4"
PPC205A	3/8"	5/32"	6"
†PPC206A	7/16"	3/16"	6 1/4"
†PPC208A	1/2"	1/4"	6 3/4"
†PPC210A	9/16"	5/16"	7 1/4"

† Fed. Specs. GGG-P-831E apply.

MATCHED SETS

Chisels/Punches



CAUTION: Always wear approved eye protection when using punches or chisels. Never use punches or chisels with chipped or mushroomed ends; dress to original shape with a hand file. Use proper size punch; hold it in direct line to pin.

PUNCHES AND CHISELS IN FULL SETS

The sets shown on this page are primarily composed of chisels and punches shown on catalog page 156. Refer to that page for full descriptions of punches and chisels included in these sets.

PUNCH AND CHISEL SET

A PPC710A Set. Includes ten punches and chisels and chisel gauge in a plastic tray.

B PPC715A Set. Includes fifteen punches and chisels and chisel gauge in a plastic tray.

CHISEL SET

C PPC100K Set. Includes ten chisels in C104B Kit bag.

PPC100 Set. Above set, tools only.

STARTER AND PIN PUNCH SET

D PPSD120K Set. Includes twelve punches in C123 Kit Bag.

PPSD120 Set. Above set, tools only.

LONG TAPERED PUNCH SET

E PPLT40K Set. Includes four punches in C42B Kit Bag.

PPLT40 Set. Above set, tools only.

STARTER PUNCH SET

F PPCD60K Set. Includes six punches in C64B Kit Bag.

PPCD60 Set. Above set, tools only.

PUNCH AND CHISEL SET

G PPC200AK Set. Includes twenty punches and chisels and chisel gauge in C211B Kit Bag.

PPC200A Set. Above set, tools only.

FLAT CHISEL SET

H PPC50K Set. Includes five chisels in C50B Kit Bag.

PPC50 Set. Above set, tools only.

COMPLETE SET

J PPC260AK Set. Includes twenty-four punches and chisels and a chisel gauge and holder in C260A Kit Bag.

PPC260 Set. Above set, tools only.

PIN PUNCH SET

K PPCS60K Set. Includes six punches in C64B Kit Bag.

PPCS60 Set. Above set, tools only.

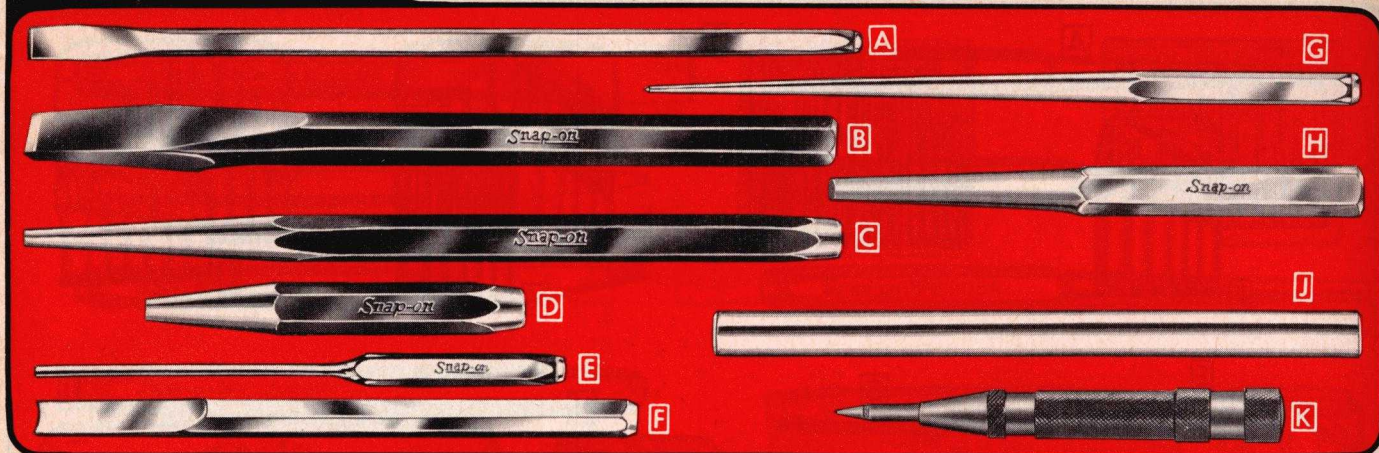
MIDGET SET

L PPVP70AK Set. Includes the following seven tools in C72B Kit Bag.

Stock No.	Description	Overall Length	Point/Edge
PPC402A	Pin Punch	3"	1/16"
PPC403A	Pin Punch	3 1/4"	1/8"
PPC404A	Center Punch	3 5/8"	7/64"
PPC405A	Starter Punch	3 3/4"	1/16"
PPC406A	Cape Chisel	3 7/8"	3/16"
PPC407A	Cape Chisel	4"	5/32"
PPC408A	Flat Chisel	4 1/8"	5/16"

PUNCH AND CHISEL SET CONTENTS

Stock No.	Description	A PPC-710A	B PPC-715A	C PPC-100	D PPSD-120	E PPLT-40	F PPCD-60	G PPC-200A	H PPC-50	J PPC-260	K PPCS-60
PPC1A	Chisel Gauge	X	X	—	—	—	—	X	—	X	—
PPC3A	Center Punch	—	X	—	—	—	—	X	—	X	—
PPC4A	Center Punch	X	X	—	—	—	—	X	—	X	—
PPC5	Tool Holder	—	—	—	—	—	—	—	—	X	—
PPC12A	Round Cape Chisel	—	—	X	—	—	—	—	—	X	—
PPC13A	Cape Chisel	—	—	X	—	—	—	—	—	X	—
PPC14A	Cape Chisel	—	—	X	—	—	—	—	—	X	—
PPC15A	Diamond Point Chisel	—	—	X	—	—	—	—	—	X	—
PPC19A	Diamond Point Chisel	—	—	X	—	—	—	—	—	X	—
PPC103A	Pin Punch	X	X	—	X	—	—	X	—	X	X
PPC104A	Pin Punch	—	X	—	X	—	—	X	—	X	X
PPC105A	Pin Punch	X	X	—	X	—	—	X	—	X	X
PPC106A	Pin Punch	X	X	—	X	—	—	X	—	X	X
PPC108A	Pin Punch	—	X	—	X	—	—	X	—	X	X
PPC110A	Pin Punch	—	—	—	X	—	—	X	—	X	X
PPC203A	Starter Punch	X	X	—	X	—	X	X	—	X	—
PPC204A	Starter Punch	—	X	—	X	—	X	X	—	X	—
PPC205A	Starter Punch	X	X	—	X	—	X	X	—	X	—
PPC206A	Starter Punch	X	X	—	X	—	X	X	—	X	—
PPC208A	Starter Punch	—	X	—	X	—	X	X	—	X	—
PPC210A	Starter Punch	—	—	—	X	—	X	X	—	X	—
PPC812A	Flat Chisel	X	X	X	—	—	—	X	X	X	—
PPC816A	Flat Chisel	X	X	X	—	—	—	X	X	X	—
PPC820A	Flat Chisel	X	X	X	—	—	—	X	X	X	—
PPC824A	Flat Chisel	—	—	X	—	—	—	X	X	X	—
PPC828A	Flat Chisel	—	—	X	—	—	—	X	X	X	—
PPC905A	Long Tapered Punch	—	—	—	—	X	—	—	—	—	—
PPC908A	Long Tapered Punch	—	—	—	—	X	—	—	—	—	—
PPC910A	Long Tapered Punch	—	—	—	—	X	—	—	—	—	—
PPC912A	Long Tapered Punch	—	—	—	—	X	—	—	—	—	—
Kit Bag for Set		None	None	C104B	C123	C42B	C64B	C211B	C50B	C260A	C64B



CAUTION: Always wear approved eye protection when using chisels or punches. Never use punches or chisels with chipped or mushroomed ends; dress to original shape with a hand file. Use proper size punch; hold it in direct line to pin.

LONG FLAT CHISELS

A PPC820LA. 16" long, made of 1/2" beveled square stock with a 5/8" edge width and 70° cutting angle.

B Chisels. Range in length from 11" to 18" and include parabolic heads.

Stock No.	Stock	Edge	Length
1020A	5/8"	3/4"	11"
▲1024A	3/4"	7/8"	12"
1628A	3/4"	15/16"	16"
▲1832A	7/8"	1"	18"

LCF40 Chisel Set. Four chisels above.

LONG PUNCHES

Stock No.	Stock	Tip	Taper	Length
1210A	5/8"	5/16"	4"	12"
1512A	3/4"	3/8"	5"	15"
1816A	7/8"	1/2"	6"	18"

LP30 Punch Set. Three punches above.

SHORT PUNCHES

Stock No.	Stock	Tip	Taper	Length
†7010	5/8"	5/16"	2"	7"
†7012	3/4"	3/8"	2 1/4"	7"
†7016	7/8"	1/2"	2 7/16"	7"

E PPC107LA Long Pin Punch. 8" long punch has a straight drift section 7/32" in diameter and 4 1/2" long.

PPCM104L Metric Long Pin Punch. 8" long punch has a straight drift section 4 mm in diameter and 4 1/2" long.

F GA1 Bushing Cutter. 7 1/4" long, made of 1/2" octagonal stock with a 7/16" by 3/8" bit. Curved bit pushes material away from work.

G PPC714A Long Taper Punch. 14" long, made of 9/16" beveled square stock with a 5/32" point and 9 13/16" taper.

Bronze Punches. Use when sparks from a steel punch would be dangerous. Doesn't mushroom or chip as easily as brass. Periodic dressing is necessary.

H PPC1001. 8" long, 5/8" stock tapers to 3/8" point.

J PPC1002. 10" long, 3/4" diameter round stock with chamfered ends.

K YA805 Automatic Center Punch. Strikes blow when pressure is applied... no hammer needed. Cap adjusts force of blow. Hardened steel point is replaceable. 4 3/4" long, 7/16" diameter.



L PGH8A Gasket Punch Set. Cuts holes in gaskets and other soft materials. Includes 5 3/8" long mandrel and 10 punches; 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 3/4", 7/8" and 1" in a red plastic box.

M NC52 Nut Splitter. For splitting nuts up to 3/4" across the flats. *Caution: Not for use with power wrenches.*

NC52-3 Extra Cutter.

NC52-4A Extra Anvil.

N 6ASA Awl. Alloy steel blade from 1/4" diameter to tapered point. Ferrule prevents blade from pushing thru stubby plastic handle. 6 1/2" long.

O 5ASA Awl. Has standard length handle. 8 1/2" long.

Q CM3031 Scriber. One end tapers to point; the other is hook shaped. Handle is knurled. 1/8" shank diameter tapers to 1/32" point. 7 5/8" long.

CM3034 Scriber. Same design as CM3031 above, except it is 8" long.

R Steel Stamping Sets (3/16" Characters). 5/16" square steel stamp bodies are heat treated. Each is 2 1/2" long. Sets are stored in 2-piece wooden containers.

GA237 Set. Nine stamps to make any Arabic numeral. One stamp serves for both number 6 and 9.

GA238 Set. Twenty-seven stamps include all letters of alphabet and period.

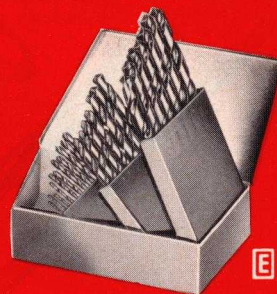
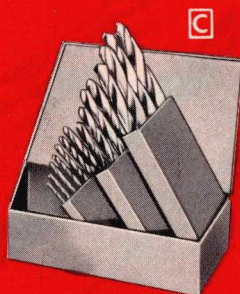
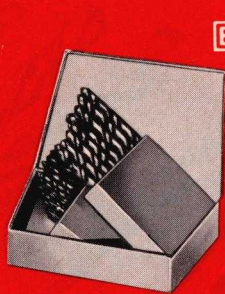
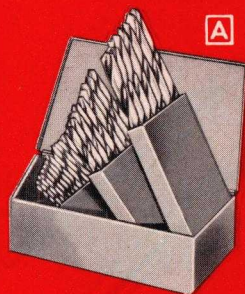
Steel Stamping Sets (1/8" Characters). Same design as GA237 and GA238 above, except characters are on 1/4" square, 2 3/8" long stock.

YA817 Set. Nine stamps to make any Arabic number. One stamp is both number 6 and 9.

YA818 Set. Includes twenty-six letters of the alphabet plus period.

DRILL BIT SETS

Drilling



CAUTION: Always wear approved eye protection when using power tools

See pages 160 and 161 for the individual drill bits in the sets listed below. Metal indexes are provided with most drill sets and are also available separately as listed below.

HIGH SPEED DRILL SETS

FRACTIONAL DRILL SETS

Set No.	No. of Drills	Drills	Sizes	Graduations	Metal Index
A DB129A	29	DBF $\frac{1}{16}$ "B — DBF $\frac{1}{2}$ "B	$\frac{1}{16}$ " — $\frac{1}{2}$ "	$\frac{1}{64}$ "	B129
A DB329A	29	DBF $\frac{1}{16}$ "B — DBF $\frac{3}{8}$ "B CSE253A — CSE323A	$\frac{1}{16}$ " — $\frac{3}{8}$ " $\frac{25}{64}$ " — $\frac{1}{2}$ "	$\frac{1}{64}$ " $\frac{1}{64}$ "	B129
B DB121A	21	DBF $\frac{1}{16}$ "B — DBF $\frac{3}{8}$ "B	$\frac{1}{16}$ " — $\frac{3}{8}$ "	$\frac{1}{64}$ "	B121
C DB115A	15	DBF $\frac{1}{16}$ "B — DBF $\frac{1}{2}$ "B	$\frac{1}{16}$ " — $\frac{1}{2}$ "	$\frac{1}{32}$ "	B129
D DB113A	13	DBF $\frac{1}{16}$ "B — DBF $\frac{1}{4}$ "B	$\frac{1}{16}$ " — $\frac{1}{4}$ "	$\frac{1}{64}$ "	B113

METRIC DRILL SETS

Set No.	No. of Drills	Drills	Sizes	Graduations	Metal Index
E DBM125A	25	DBM1 — DBM13	1 mm — 13 mm	.5 mm	B125A
F DBM111	11	DBM1 — DBM6	1 mm — 6 mm	.5 mm	B111A

WIRE GAUGE DRILL SETS

Set No.	No. of Drills	Drills	Sizes	Metal Index	Plastic Index
G DB160A	60	DBE1A — DBE60A	.2280" — .0400"	B160	—
H DB120B	20	DBE61A — DBE80A	.0390" — .0135"	—	H120B

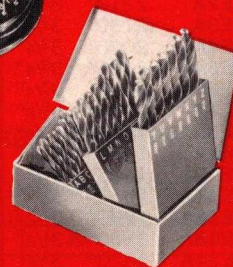
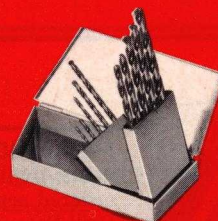
LETTER DRILL SET

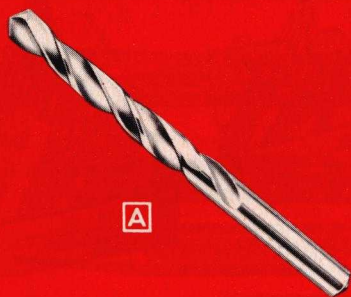
Set No.	No. of Drills	Drills	Sizes	Metal Index
J DBA126	26	DBA1A — DBA1Z	A — Z (.2340" — .4130")	B126

STUBBY DRILL SETS

K DBS106A Right Hand Set. Includes 6 short length drill bits...DBS $\frac{1}{16}$ "A thru DBS $\frac{3}{4}$ "A...in sizes $\frac{1}{16}$ ", $\frac{3}{32}$ ", $\frac{1}{8}$ ", $\frac{5}{32}$ ", $\frac{3}{16}$ " and $\frac{1}{4}$ ". Each bit (except $\frac{1}{16}$ ") has 135° split point for starting holes.

L DBLS105 Left Hand Set. Includes 5 short length drill bits...DBLS $\frac{1}{8}$ " thru DBLS $\frac{11}{32}$ "...in sizes $\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ " and $\frac{11}{32}$ ". Ideal for use with screw extractors. Left hand configuration tends to loosen screw and provide firmer bite for extractor.





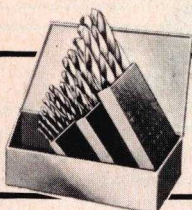
A



B



C



METAL INDEXES are provided with many drill sets but may also be ordered separately. See High Speed Drill Sets on page 159 for ordering individual metal indexes.

A FRACTIONAL DRILLS

No./Size	Length	No./Size	Length	No./Size	Length
DBF1/16B	17/8"	DBF13/64B	35/8"	DBF23/64B	47/8"
DBF5/64B	2"	DBF7/32B	33/4"	DBF3/8B	5"
DBF3/32B	21/4"	DBF15/64B	37/8"	DBF25/64B	51/8"
DBF7/64B	25/8"	DBF1/4B	4"	DBF13/32B	51/4"
DBF1/8 B	23/4"	DBF17/64B	41/8"	DBF27/64B	53/8"
DBF9/64B	27/8"	DBF9/32B	41/4"	DBF7/16B	51/2"
DBF5/32B	31/8"	DBF19/64B	43/8"	DBF29/64B	53/8"
DBF11/64B	31/4"	DBF5/16B	41/2"	DBF15/32B	53/4"
DBF3/16B	31/2"	DBF21/64B	45/8"	DBF31/64B	57/8"
		DBF11/32B	43/4"	DBF1/2B	6"

See Page 159 for Drill Sets in this series.

CAUTION: Always wear approved eye protection when using power tools.

B METRIC DRILL SETS

No./Size	Overall Length		No./Size	Overall Length	
	mm	in.		mm	in.
DBM1	41	119/32"	DBM7.5	111	43/8"
DBM1.5	41	119/32"	DBM8	114	41/2"
DBM2	54	21/8"	DBM8.5	121	449/64"
DBM2.5	54	21/8"	DBM9	124	425/32"
DBM3	70	23/4"	DBM9.5	127	5"
DBM3.5	73	27/8"	DBM10	130	57/64"
DBM4	83	317/64"	DBM10.5	137	511/32"
DBM4.5	86	33/8"	DBM11	140	51/2"
DBM5	92	35/8"	DBM11.5	143	55/8"
DBM5.5	95	347/64"	DBM12	150	529/32"
DBM6	102	33/4"	DBM12.5	152	6"
DBM6.5	105	41/8"	DBM13	155	67/64"
DBM7	105	41/8"			

See page 159 for Drill Sets in this series.

C WIRE GAUGE DRILLS

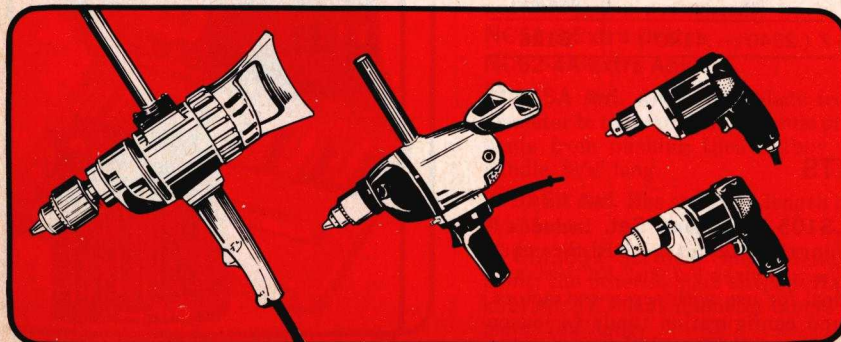
(Stock number indicates drill size)

No./Size	Deci. Equiv.	Length	No./Size	Deci. Equiv.	Length	No./Size	Deci. Equiv.	Length	No./Size	Deci. Equiv.	Length	No./Size	Deci. Equiv.	Length
DBE1A	.2280"	37/8"	DBE17A	.1730"	33/8"	DBE33A	.1130"	25/8"	DBE49A	.0730"	2"	DBE65A	.0350"	11/2"
DBE2A	.2210"	37/8"	DBE18A	.1695"	31/4"	DBE34A	.1110"	25/8"	DBE50A	.0700"	2"	DBE66A	.0330"	13/8"
DBE3A	.2130"	33/4"	DBE19A	.1660"	31/4"	DBE35A	.1100"	25/8"	DBE51A	.0670"	2"	DBE67A	.0320"	13/8"
DBE4A	.2090"	33/4"	DBE20A	.1610"	31/4"	DBE36A	.1065"	21/2"	DBE52A	.0635"	17/8"	DBE68A	.0310"	13/8"
DBE5A	.2055"	33/4"	DBE21A	.1590"	31/4"	DBE37A	.1040"	21/2"	DBE53A	.0595"	17/8"	DBE69A	.0295"	13/8"
DBE6A	.2040"	33/4"	DBE22A	.1570"	31/8"	DBE38A	.1015"	21/2"	DBE54A	.0550"	17/8"	DBE70A	.0280"	11/4"
DBE7A	.2010"	35/8"	DBE23A	.1540"	31/8"	DBE39A	.0995"	23/8"	DBE55A	.0520"	17/8"	DBE71A	.0260"	11/4"
DBE8A	.1990"	35/8"	DBE24A	.1520"	31/8"	DBE40A	.0980"	23/8"	DBE56A	.0465"	13/4"	DBE72A	.0250"	11/8"
DBE9A	.1960"	35/8"	DBE25A	.1495"	3"	DBE41A	.0960"	23/8"	DBE57A	.0430"	13/4"	DBE73A	.0240"	11/8"
DBE10A	.1935"	35/8"	DBE26A	.1470"	3"	DBE42A	.0935"	21/4"	DBE58A	.0420"	15/8"	DBE74A	.0225"	1"
DBE11A	.1910"	31/2"	DBE27A	.1440"	3"	DBE43A	.0890"	21/4"	DBE59A	.0410"	15/8"	DBE75A	.0210"	1"
DBE12A	.1890"	31/2"	DBE28A	.1405"	27/8"	DBE44A	.0860"	21/8"	DBE60A	.0400"	15/8"	DBE76A	.0200"	7/8"
DBE13A	.1850"	31/2"	DBE29A	.1360"	27/8"	DBE45A	.0820"	21/8"	DBE61A	.0390"	15/8"	DBE77A	.0180"	7/8"
DBE14A	.1820"	33/8"	DBE30A	.1285"	23/4"	DBE46A	.0810"	21/8"	DBE62A	.0380"	11/2"	DBE78A	.0160"	7/8"
DBE15A	.1800"	33/8"	DBE31A	.1200"	23/4"	DBE47A	.0785"	2"	DBE63A	.0370"	11/2"	DBE79A	.0145"	3/4"
DBE16A	.1770"	33/8"	DBE32A	.1160"	23/4"	DBE48A	.0760"	2"	DBE64A	.0360"	11/2"	DBE80A	.0135"	3/4"

See Page 159 for Drill Sets in this series.

HEAVY DUTY ELECTRIC DRILLS

SNAP-ON makes available to you a wide range of heavy duty electric drills capable of handling a variety of drilling applications. Chuck sizes on these heavy duty drills are: 1/4", 3/8", 1/2" and 3/4". Check with your SNAP-ON representative for the current models available in your area.





CAUTION: Wear approved eye protection when using power tools.

REDUCED SHANK DRILLS

A 1/4" SHANK DRILLS

Stock No.	Diameter	Stock No.	Diameter
CSE182A	9/32"	CSE262A	13/32"
CSE202A	5/16"	CSE282A	7/16"
CSE222A	11/32"	CSE302A	15/32"
CSE242A	3/8"	CSE322A	1/2"

DB425A Set. 5/16", 3/8", 7/16" and 1/2" drills in kit bag.

B 3/8" SHANK DRILLS

Stock No.	Diameter	Stock No.	Diameter
CSE253A	25/64"	CSE293A	29/64"
CSE263A	13/32"	CSE303A	15/32"
CSE273A	27/64"	CSE313A	31/64"
CSE283A	7/16"	CSE323A	1/2"

E LETTER DRILLS

(Stock number suffix indicates drill size.)

Stock No.	Deci. Equiv.	Stock No.	Deci. Equiv.	Stock No.	Deci. Equiv.
DBA1A	.2340"	DBA1J	.2770"	DBA1S	.3480"
DBA1B	.2380"	DBA1K	.2810"	DBA1T	.3580"
DBA1C	.2420"	DBA1L	.2900"	DBA1U	.3680"
DBA1D	.2460"	DBA1M	.2950"	DBA1V	.3770"
DBA1E	.2500"	DBA1N	.3020"	DBA1W	.3860"
DBA1F	.2570"	DBA1O	.3160"	DBA1X	.3970"
DBA1G	.2610"	DBA1P	.3230"	DBA1Y	.4040"
DBA1H	.2660"	DBA1Q	.3320"	DBA1Z	.4130"
DBA1I	.2720"	DBA1R	.3390"		

C 1/2" SHANK DRILLS

Stock No.	Diameter	Stock No.	Diameter
CSE345A	17/32"	CSE485A	3/4"
CSE365A	9/16"	CSE505A	25/32"
CSE385A	19/32"	CSE525A	13/16"
CSE405A	5/8"	CSE565A	7/8"
CSE425A	21/32"	CSE605A	15/16"
CSE445A	11/16"	CSE645A	1"
CSE465A	23/32"		

1/8" DOUBLE END DRILL

DBD1/8A. Features double 1/8" end which allows use of both ends for drilling. A 135° split point prevents drill from "walking" when hole is started. 2" long. 10 per package.

PIN VISE

F YA806. Features a thumb pressure swivel head. Includes two double-ended collets which are enclosed within the tool. Capacity is 0 to .125" **Metric capacity is 0 to 3.2 mm.**

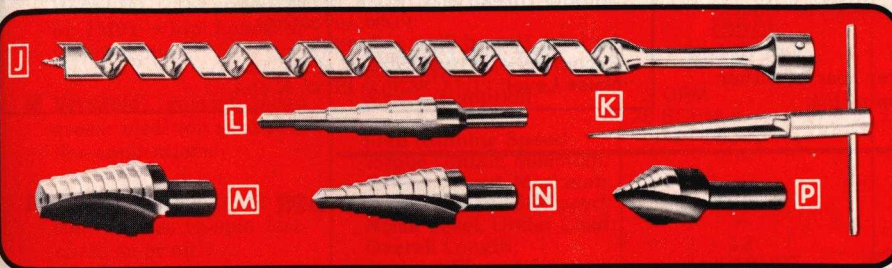
STUBBY DRILL BITS

G RIGHT HAND BITS

Stock No.	Size	Length
DBS1/16A	1/16"	11 1/16"
DBS3/32A	3/32"	13 3/4"
DBS1/8A	1/8"	17 1/8"
DBS5/32A	5/32"	21 1/16"
DBS3/16A	3/16"	23 1/16"
DBS1/4A	1/4"	21 1/2"

H LEFT HAND BITS

Stock No.	Size	Length
DBLS1/8	1/8"	17 1/8"
DBLS3/16	3/16"	23 1/16"
DBLS1/4	1/4"	21 1/2"
DBLS5/16	5/16"	21 3/16"
DBLS11/32	11/32"	3"



J WOOD AUGERS

Offer the benefit of impact drilling without the necessity for a chuck. "LOXOCKET" permits quick interchange of units on 1/2" square drive impact wrench.

Size	Stock Number	Flute Length	Overall Length
11/16"	SBW2217B	12"	17"
13/16"	SBW2617B	12"	17"

K R120 Tapered Reamer. Tapers from 1/8" to 1/2". For removing burrs and enlarging holes.

UNIBITS®

Feature multiple step configuration for drilling size holes from one bit. Will drill thru such materials as plastic, wood and sheet metal.

Stock No.	Shank Dia.	Number	Hole Sizes	
			Range	Increments
L GA364	1/2"	8	9/16" to 1"	1/16"
M GA365	3/8"	9	1/4" to 3/4"	1/32"
N GA366	1/4"	6	3/16" to 1/2"	1/16"
† P GA367	1/4"	...	1/2"	...
† P GA368	1/4"	...	3/8"	...

"Unibit" is a registered trademark of UNIBIT CORP.
† Designed for rust proofing holes.



CAUTION: Always wear approved eye protection. Disconnect drills before changing bits or chucks. Do not remove drill chips by blowing or with bare hands...stop the air drills completely and use a rag or brush. When flushing out dirt, sludge or solvents, never point the tool at other people or near any flame.

FEATURES

- Rotary air motor provides high speed on the PD3A and high torque on the PD30.
- Smooth, quiet, vibration-free use.
- Variable speed trigger for speed control and feathering ability.
- Lightweight, comfortable aluminum grip.
- Replaceable air inlet bushing.
- Removable brass filter screen.
- Exhaust directed away from the work and the user.
- Built-in oiler for day-long lubrication.

 $\frac{3}{8}$ " DRILL

A PD3A. Here is the ideal tool for general drilling applications, and it is also excellent for most of your wood boring, sanding, honing, reaming, wire brushing and countersinking jobs. See specifications below.

SCB375B $\frac{3}{8}$ " Replacement Chuck.

OPTIONAL ACCESSORIES

IM19 Motor Oil. Illustrated at right. One pint can. Use in air inlet of piston or rotary air tool or in air line lubricator.

CAUTION: IM19 Oil is flammable at 140°F, and becomes too thick at -60°F.



SCB500C $\frac{1}{2}$ " Chuck for PD3A. Chuck diameter is $1\frac{13}{16}$ ". Chuck key is included.

GA247A Leather Boot (not shown). Snaps over rear of either drill to protect against damage. See illustration on p. 164.

 $\frac{1}{2}$ " DRILL

B PD30. This double gear reduction version of the PD3A offers lower speed and higher torque for those heavy duty drilling jobs. It includes all the same fine features as its smaller "sister" unit and more. See specifications below.

PD30-2A $\frac{1}{2}$ " Replacement Chuck.

SPECIFICATIONS

Standard Operating Pressure: 90 psig (620 kPa)
Air Consumption: 23 SCFM (0.010 m³/S); 3.2 CFM (0.002 m³/S)
Free Running Speed (Minimum): PD3A, 2,000 rpm
 PD30, 600 rpm
Torque Output at Stall Minimum: PD3A, 55 lb. in. (6.2 N•m)
 PD30, 180 lb. in. (20.1 N•m)
Torque Output at 1500 rpm Minimum: PD3A, 19 lb. in. (2.1 N•m)
Torque Output at 300 rpm Minimum: PD30, 80 lb. in. (9 N•m)
Overall Length: PD3A, 7 $\frac{1}{2}$ " (.19 m)
 PD30,
Net Weight: PD3A, 2.6 lbs. (1.18 kg)
 PD30, 3.7 lbs. (1.38 kg)
Drill Bit Range: PD3A, $\frac{1}{16}$ " to $\frac{3}{8}$ " diameter.
 PD30, $\frac{1}{16}$ " to $\frac{1}{2}$ " diameter
Spindle Thread Size: PD3A, $\frac{3}{8}$ "-24 UNF
 PD30, $\frac{1}{2}$ "-20UNF
Air Inlet Thread Size: $\frac{1}{4}$ "-18NPT
Recommended Hose Size: 8' of $\frac{3}{16}$ " I.D.
Noise Level: PD3A, 88 dbA; PD30, 92 dbA

OSCILLATING SANDER



C AT400. Orbital, patternless action for smooth, expert finishing. Ideal for removing paint, sanding primer coats and smoothing fiberglass. Features a powerful, balanced, ball bearing mounted rotary air motor...it reduces vibration and enhances operation. Also includes: paddle-type control lever with feathering ability, speed regulator, flexible sanding pad for curved surfaces, rubber protected housing and a rubber grip for a comfortable hold.

SPECIFICATIONS

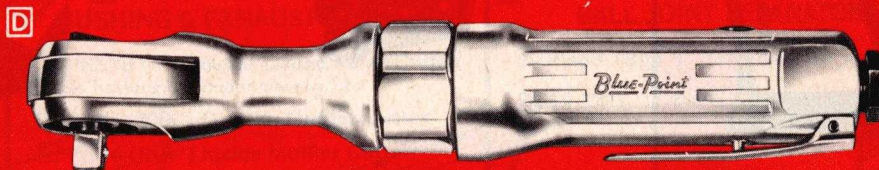
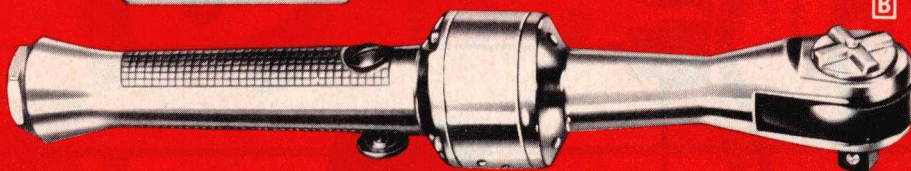
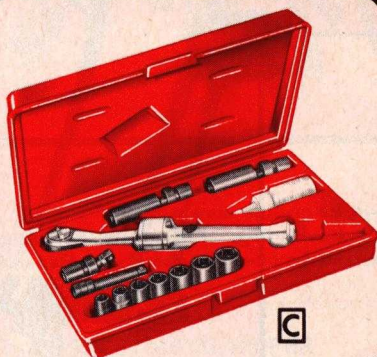
Standard Operating Pressure: 60 psig (414 kPa)
Free Running Speed: 10,000 rpm minimum
H.P.: .44
Overall Length: 8 $\frac{1}{4}$ " (.21 m)
Net Weight: 5 lbs. (1.9 kg)

Pad Size: 6"
Orbital Stroke: $\frac{3}{16}$ "
Air Inlet Thread Size: $\frac{1}{4}$ "-18NPT
Recommended Hose Size: $\frac{3}{8}$ "
Noise Level: 90 dbA

See air tool accessories on pages 168 and 169.

RATCHETS (3/8" DR.)

Pneumatic



FEATURES

- **Stalling Action...** on the FAR70 and FAR71 to prevent overtightening and fastener damage.
- **Reversible Action...** and its equal turning power in either direction.
- **Two-Speed Operation...** low speed starts fasteners; high speed runs them in.
- **Noise Dulling Muffler...** reduces pitch and intensity of noise.
- **Replaceable Air Inlet Bushing...** just add IM20 or IM21 whip hoses or male coupler.
- **Versatile...** gets into tough areas; ideal for assembly line applications.
- **Fast...** just one-tenth the time or less to spin fasteners on or off.

CAUTION: Always wear approved eye protection when using power tools. Follow maintenance tips included with power equipment. Always keep pneumatic equipment well lubricated for safe operation.

A FAR71 High Torque Ratchet. Combines all the features at left and more. As versatile as you wish to make it, the FAR71 saves time and effort in any operation where its high torque stalling capability can make stubborn, rusty fasteners easier to remove.

B FAR70B Ratchet. Includes all the same fine features as FAR71 above. Spins fasteners on and off with ease...making it ideal for assembly line or automotive work.

C FAR7012B Set. Includes: FAR70B above, plus IMF120 thru IMF240 Impact Sockets and IPF800 Universal Joint (p. 63), GFX2 Extension Bar (p. 60), S9709B and S9710A Spark Plug Sockets (p. 239) and a one-ounce bottle of air motor oil packaged in **PB7A** Plastic Case.

D AT700 Ratchet. Includes most of the same features as its companion units above. A paddle-type trigger provides precise feathering control. High torque applications.

SPECIFICATIONS

	FAR71	FAR70B	AT700
Standard Operating Pressure:	90-120 psig (620-830 kPa)	90-120 psig (620-830 kPa)	90-120 psig (620-830 kPa)
Air Consumption:	3 CFM (0.0018 m ³ /S) 28 SCFM (0.012 m ³ /S)	1.7 CFM (0.001 m ³ /S) 15.5 SCFM (0.007 m ³ /S)	4 CFM —
Free Running Speed:	180 rpm	280 rpm	150 rpm
Torque Output, Minimum:	—	50 lb.in. (5.7 N•m)	—
Torque Output, Maximum:	50 lb.ft. (67.8 N•m)	80 lb.in. (9.1 N•m)	45 lb.ft. (61 N•m)
Noise Level, Free Speed:	98 dbA	92 dbA	92 dbA
Noise Level, Under Load:	—	90 dbA	—
Overall Length:	12"	10 3/8"	10"
Air Inlet Thread Size:	1/4"-18NPT	1/4"-18NPT	1/4"-18NPT
Recommended Hose Size:	8' of 3/16"	5' of 1/4"-3/8"	5' of 1/4"-3/8"

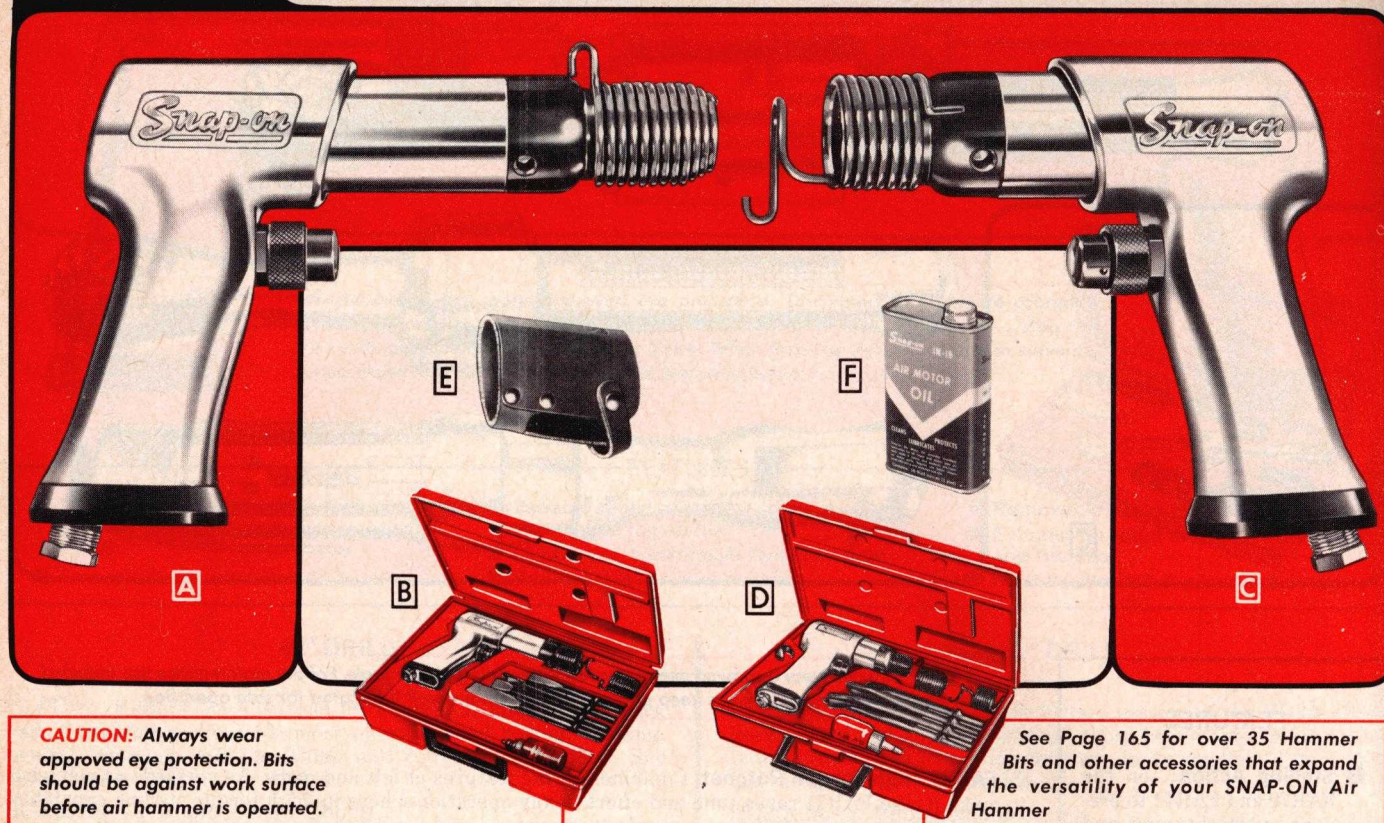
MAINTENANCE ACCESSORIES

E IM19 Air Motor Oil. Provides excellent lubrication for all rotary and piston-type air tools. Use in air inlet of tool or air line lubricator. Cleans, protects and lubricates. 1 pint. *CAUTION: Flammable 140°F; becomes too thick at -60°F.*

F GA419 Grease Gun. 3-ounce capacity. Ideal for air ratchets above. Has spring return plunger. Use *Keystone #81 Grease* or equivalent to fill this grease gun.

RKFAR70A1 Ratchet Repair Kit (for FAR70B). Includes three parts: a Groove Washer, a Thrust Washer and a Bent Cross Pin. *These parts should not be replaced separately...only as a kit.*





AIR HAMMERS & SETS

A PH50D Air Hammer. Designed for heavy-duty continuous use.

B PH505E Air Hammer Set. Includes the following: PH50D Air Hammer, PH51C Ripper, PH55B Flat Chisel, PH57B Panel Cutter, PH87 Muffler Cutter and 1 oz. bottle of air motor oil...all in the impact and solvent resistant PB1 Plastic Case.

C PH45A Air Hammer. Designed for moderate use, this unit is similar to PH50D above, but with a shorter barrel.

D PH455 Air Hammer Set. Designed specifically for removing exhaust systems. Includes: PH45A Air Hammer, PH55B Flat Chisel, PH87 Muffler Cutter, PH65 Outside Muffler Cutter, PH66 Inside Muffler Cutter and 1 oz. bottle of air motor oil in the PB1 Plastic Case.

Each Air Hammer includes PH50-13 Bushing, PH50-11A Beehive Retaining Spring and PH50-10 Universal Retaining Spring as standard items.

SPECIFICATIONS

Standard Operating Pressure: 120 psig (830 kPa)
 Air Consumption (PH50D): 30.1 SCFM, 3.3 CFM
 (PH45A): 30.2 SCFM, 3.3 CFM
 Blows per Minute (PH50D): 3,000
 (PH45A): 4,500
 Noise Level (PH50D): 100 dbA
 (PH45A): 101 dbA
 Overall Length (PH50D): 8¹/₁₆"
 (PH45A): 6¹³/₁₆"

AIR HAMMER FEATURES

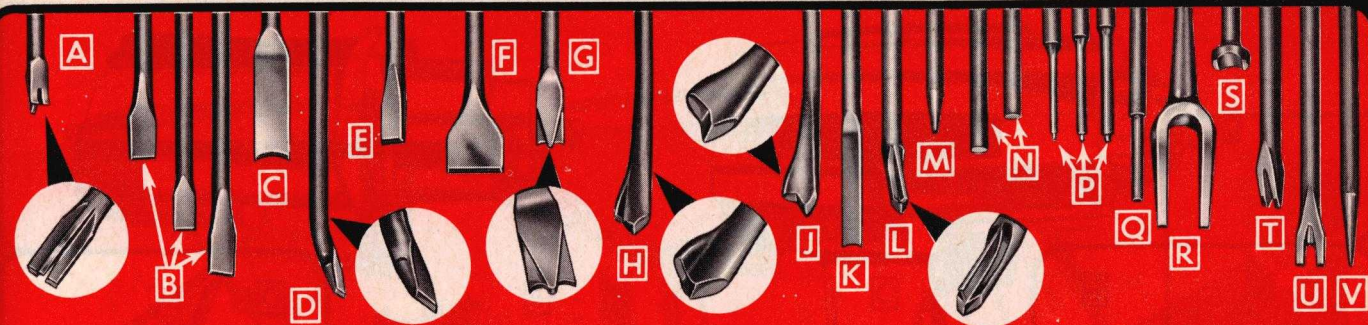
- **Solid, Single-Piece Barrel.** Use of "fatigue-proof" steel eliminates need for inner and outer barrels, providing greater strength and longer tool life.
- **Two-Step Regulator Trigger.** Provides positive low speed control with feathering ability...plus smooth, progressive second stage airflow control.
- **Contoured Aluminum Handle.** Lightweight for long-use periods. Comfort-designed angle. Rubber bumper for more protection.
- **Directed Air Exhaust.** Air is directed away from user to front of tool. Full-circumference channel between handle and barrel softly disperses exhaust.
- **Chrome Plated Barrel Sleeve.** Adds beauty...provides long-lasting finish.
- **Pipe Bushing Coupler.** Reduces chance of cross-threading a coupler adaptor...and it's replaceable.
- **Power-Packed Piston.** Delivers fewer but harder blows for maximum impact with less vibration. Increases tool life.
- **Spring Steel Flutter Disc.** Outlasts fiber or composition discs found in some other tools.
- **Air Line Filter.** Helps prevent foreign particles from clogging trigger mechanism.
- **Nylon Friction Plugs.** Used to connect barrel to handle instead of set screws...they absorb vibration to reduce chance of unit disassembling in use.

OPTIONAL ACCESSORIES

E GA247A Leather Boot. Snaps over rear of Air Hammer to protect against damage. Fits all SNAP-ON Air Hammers, including all earlier models.

CAUTION: IM19 Air Motor Oil is flammable at 140°F, and it will become too thick at -60°F.

F IM19 Air Motor Oil. One pint can. Provides excellent lubrication for all piston-type and rotary air tools. Use in air inlet of tool or air line lubricator. Cleans...protects...lubricates.



CAUTION: Always wear approved eye protection. Bits should be against work surface before air hammer is operated. Discard chipped or cracked bits.

SHEET METAL RIPPER

A PH51C (5"). Cuts sheet metal.

CHISELS

B PH55B (7") Flat Chisel. Cuts frame members, bolts, tees and angles; splits nuts and bevels steel plates.

PH58 (97/8") Flat Chisel. Similar to PH55B.

PH84 (18") Flat Chisel. Similar to PH55B.

C PH61 (67/8") Slitting Chisel. Cuts tail or exhaust pipes.

D PH64 (99/16") Bent End Chisel. Shears off rivets holding ball joints.

E PH85 (53/4") Curved Flat Chisel.

SCRAPER

F PH56 (63/4"). Removes grease and mud.

BUSHING & EXHAUST CUTTERS

G PH57B (6") Double Bladed Panel Cutter. Slices bushings, cylinder sleeves, etc.

H PH65 (83/4") Outside Muffler Cutter.

J PH66 (83/4") Inside Muffler Cutter.

K PH76 (81/2") Bushing Cutter.

L PH87 (8") Muffler Cutter.

PUNCHES

M PH59 (7") Tapered Punch. 3/16" tip.

N PH73 (6") Pin Punch.

PH83 (71/2") Punch. 8 mm valve guide punch or 5/16" drift punch.

P PH80 (6") Roll Pin Punch. 1/4" size.

PH81 (6") Roll Pin Punch. 5/16" size.

PH82 (6") Roll Pin Punch. 3/8" size.

Q PH86 (77/16") Valve Guide Remover. For 9 mm inserts on VW and Porsche 911 engines.

BALL JOINT SEPARATORS

R PH63 (81/8"). 13/16" between fork tines.

PH69 (8"). 1" between fork tines for large joints.

BREAKERS

S PH67 (37/8"). For tie rod sleeve; vibrates tie rod end and arm joint apart.

T PH70 (61/2"). For breaking spot welds.

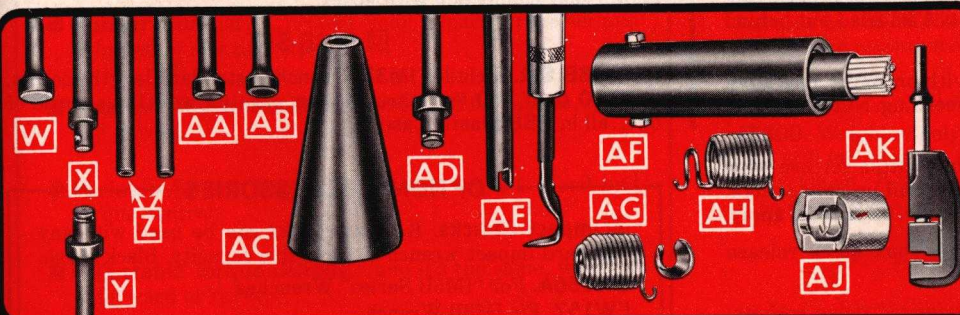
U PH167 (101/2"). Straddles 5/16" shaft to split shock absorber nut.

PH170 (18"). Same as PH167, except longer.

PH168 (101/2"). Straddles 3/8" shaft to split 3/8" shock absorber nut.

PH171 (18"). Same as PH168, except longer.

V PH172 (18"). Pencil point breaker for breaking shock absorber nut from any angle.



DRIVERS

W PH71 (4") Round Hammer. Drives nails.

PH72 (37/8") U-Joint Trunnion Driver. Services needle-type trunnions.

X PH75 (51/2") Bushing Driver.

Y PH90 (511/16") Bushing Driver. Provides pneumatic power for adaptors in A158A Driver Set (p. 209).

RIVETERS

Z PH74 (6"). For 3/16" compression head rivets.

PH78 (6"). For 1/4" compression head rivets.

AA PH88 (6"). For 3/16" Brazier head compression rivets.

AB PH89 (37/8"). For 1/4" Brazier head compression rivets.

MUFFLER-TAILPIPE SET

PH770 Muffler-Tailpipe Expander Set. Includes:

AC PH77 (51/4") Expander Cone. From 11/8" to 3" in diameter.

MISCELLANEOUS TOOLS

AD PH79 (511/16") Cone Driver.

AE PH169 (71/2") Windshield Remover. 2-piece unit removes windshield seals smoothly.

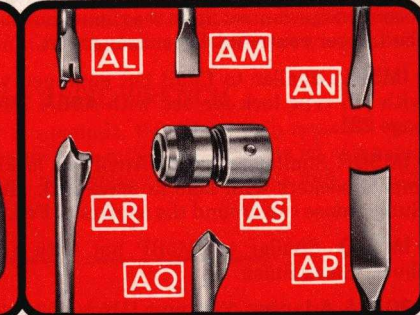
AF PH201 (713/16") Needle Scaler. Projecting rods chip away rust.

AG PH50SBS Beehive Spring and Bushing Set. Includes: PH50-11A Spring and PH50-13 Bushing.

AH PH50-10 Quick Change Universal Spring. Fits all bits on this page.

AJ GA250 (2") Safety Chuck and Chisel Holder. Locks chisel in place.

AK PH158A (7") Panel Crimper. Forms a step in sheet metal so a patch panel may be set flush together with it for spot welding.



NON-TURN BIT

NON-TURN TOOLS

AL PH151 (611/16") Panel Cutter. Edges and trims sheet metal. 5/8" diameter tip.

AM PH155 (7") Chisel. Cuts bolts, tees and angles. Also splits and bevels.

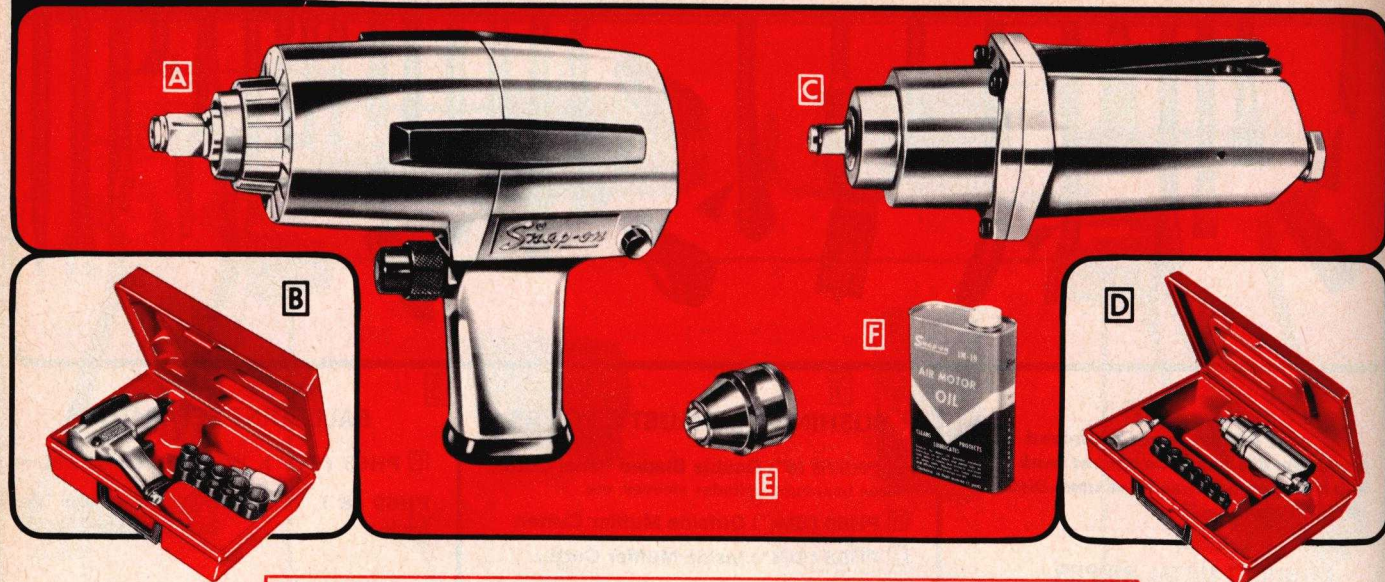
AN PH157 (71/2") Panel Cutter. Slices bushings, cylinder sleeves and muffler pipes.

AP PH161 (83/8") Chisel. Cuts tail or exhaust pipes.

AQ PH165 (813/16") Outside Muffler Cutter.

AR PH166 (813/16") Inside Muffler Cutter.

AS PH200 Retainer Chuck. For Snap-on Parker-type and Ajax non-turn tools.



CAUTION: Always wear approved eye protection when using impact wrenches. Use only impact type sockets on these wrenches.

FEATURES

- **Aluminum Housing**...lightweight and durable.
- **Rotary Action Motor**...long life, smooth performance.
- **Forward-Reverse Switch**...ideal for dual applications.
- **Rugged Impact Housing**...designed to meet your heavy duty demands.
- **Factory Lubricated and Sealed**...ready for action.
- **Two-Step Trigger**...slow and fast with special adjustment for setting desired speed.
- **Comfort Designed Grip**...helps reduce hand fatigue.

A 1/2" DRIVE WRENCHES

• **IM5B (illustrated).** Designed for continuous service. Torque is adjustable from zero to peak power. Features replaceable bumper guards and a large, comfortable handle. A two-step trigger offers variable low speed control with feathering ability and progressive second stage control up to maximum output. A knurled nut behind the trigger controls trigger movement.

• **IM5BL.** Similar to IM5B but equipped with an extra long anvil with pin type lock for use with **A98A** Wheel Lug Nut Socket on page 221.

• **IM5BP.** Similar to IM5B. Anvil has locking button for use with impact sockets with hole in drive end. Metal bail on rear of tool. Rubber nose cap around the anvil end. Fed. Specs. 00-W-891E apply.

• **IM5AQ.** Similar to IM5BP but with a 7/16" hex quick release chuck. Black finish.

A3011A Adaptor. Fits into IM5AQ Chuck for 1/2" drive sockets.

B IM5B SETS

IM5012B Set. Includes **IM5B** Wrench and 11 standard length sockets, **IM120** thru **320** (3/8" thru 1") on page 75, in **PB2** Plastic Case (13 3/8" x 10" x 4 3/4" high).

IM5023B Set. Includes same components as in IM5012B Set above, plus 11 bolt clearance sockets **SIM120** thru **320** (3/8" thru 1") on page 75, in **PB2** Plastic Case.

C 3/8" DRIVE WRENCH

IM3B. Designed for moderate-duty use. Paddle lever trigger controls speed. Trigger regulator positioned partially under paddle to restrain speed. Two ports blow exhaust away from user. Air inlet adaptor allows easy connection with hoses.

D IM3B SET

IM3008B Set. Includes **IM3B** Wrench, 7 standard length sockets, **IMF120** thru **240** (3/8" thru 3/4") on page 63, and 1 oz. bottle of oil...all in **PB8** Plastic Case.

OPTIONAL ACCESSORIES

E Impact Chucks. Keyless chucks can be used with any standard impact wrench in their size capacity. Black finish.

EW156A. For "IM5B Series" Wrenches.

EW157. For IM3B Wrench.

F IM19 Air Motor Oil. One pint can. Use in air inlet of tool or in air line lubricator.

CAUTION: Flammable at 140°F, too thick at -60°F.

LEATHER BOOTS for IMPACT WRENCHES

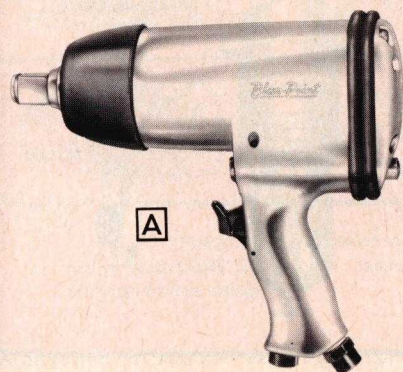
GA301B. For "IM5B Series" Wrenches

GA329A. For IM3B Wrench.

SPECIFICATIONS

IM5B Series Standard Operating Pressure: 90-120 psig (620-830 kPa)
 Air Consumption, Forward: 25.4 SCFM, 3.6 CFM
 Air Consumption, Reverse: 25.9 SCFM, 3.6 CFM
 Free Running Speed, Forward: 7,200 rpm
 Free Running Speed, Reverse: 7,500 rpm
 Torque Output Minimum, Forward: 205 lb. ft. (280 N•m)
 Torque Output Minimum, Reverse: 220 lb. ft. (298 N•m)
 Torque Output Maximum, Forward: 215 lb. ft. (292 N•m)
 Torque Output Maximum, Reverse: 225 lb. ft. (305 N•m)
 Blows per Minute: 700
 Noise Level, Free Speed: 103 dbA (IM5B); 90 dbA (IM5BP)
 Noise Level, Impacting: 100 dbA (IM5B); 95 dbA (IM5BP)
 Recommended Hose Size: 3/16" I.D.

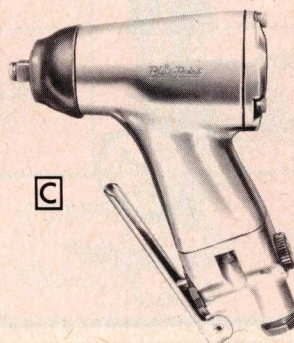
IM3B Standard Operating Pressure: 90-120 psig (620-830 kPa)
 Air Consumption: 18 SCFM, 2.5 CFM
 Free Running Speed: 8,000 rpm
 Torque Output Minimum: 70 lb. ft. (95 N•m)
 Torque Output Maximum: 90 lb. ft. (122 N•m)
 Blows per Minute: 2,200
 Noise Level, Free Speed: 95 dbA
 Noise Level, Impacting: 96 dbA



A



B



C



D

CAUTION: Always wear approved eye protection when using impact wrenches. Use only impact type sockets on these wrenches.

FEATURES

- **Aluminum Housing**...it's rugged, yet lightweight.
- **Pistol Grips**...for a sure, comfortable hold and easy maneuvering of the tool when in use.
- **Rubber Bumpers**...protect your impact wrenches and help assure safe operation.
- **Rotary Air Motor**...ballbearing mounted for balance, speed and power.
- **Variable Speed Trigger**...it means impact speed and torque control.
- **Adjustable Torque Output**...and it's the same, whether in forward or reverse.
- **Removable Brass Filter**...screens out dirt that can clog the impact mechanism.
- **Replaceable Inlet Bushing.**

A 3/4" DRIVE WRENCH

AT750. Features a splined, ball bearing mounted rotary air motor for high torque and continuous service. The square drive features a drilled-through hole for sockets and extensions with a steel pin and a rubber ring...it also includes a retaining ring for sockets that don't require steel pins. A knurled air regulator is located at the bottom of the pistol grip.

B 1/2" DRIVE WRENCH

AT500. This rugged, lightweight tool includes all the same fine features as the AT750 above, except its square drive features retaining ring retention only. Also includes **YA833** vinyl wrench cover.

C 3/8" DRIVE WRENCH

AT300. Weighing only 2½ pounds, this pistol grip type 3/8" drive unit still includes the same high quality features as its companion units above. It features retaining ring retention and a paddle type trigger.

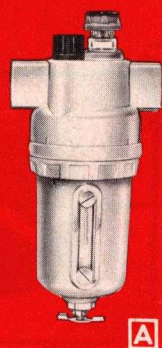
MAINTENANCE ACCESSORY

CAUTION: IM19 Air Motor Oil is flammable at 140°F, and it will become too thick at -60°F.

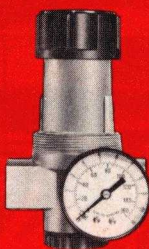
☐ **IM19 Air Motor Oil.** Provides excellent lubrication for all rotary and piston-type air tools. Use in air inlet of tool or air line lubricator. Cleans, protects and lubricates. 1 pint can.

SPECIFICATIONS

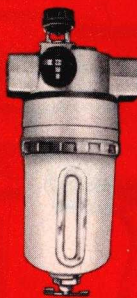
	AT300	AT500	AT750
Standard Operating Pressure:	90 psig (620 kPa)	90-120 psig (620-830 kPa)	90-120 psig (620-830 kPa)
*Air Consumption, Forward:	3 CFM	3.8 CFM (27 SCFM)	6 CFM
*Air Consumption, Reverse:	3 CFM	3.9 CFM (27.5 SCFM)	6 CFM
Free Running Speed:	8,500 rpm	7,500 rpm	5,000 rpm
*Torque Output:	90 lb. ft. (125 N•m)	220 lb. ft. (300 N•m)	700 lb. ft. (950 N•m)
Noise Level, Free Speed:	96 dbA	103 dbA	97 dbA
Recommended Hose Size:	3/8" I.D.	5/16" I.D.	3/8" I.D.
Inlet Bushing Size:	1/4"-18NPT	1/4"-18NPT	1/4"-18NPT
Overall Length:	5 1/8" (13 cm)	7" (18 cm)	9 5/8" (24 cm)
Weight:	2 1/2 lb. (1.3 kg)	5 3/8 lb. (2.4 kg)	11 1/2 lb. (4.3 kg)



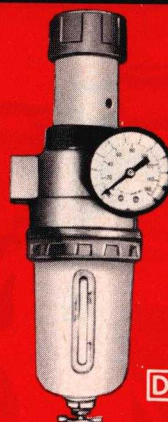
A



B



C



D



E



F



G

CAUTION: Always wear approved eye protection when using pneumatic equipment. Inspect equipment for damage before using.

AIR PROCESSING EQUIPMENT

A AHR414A Filter. Removes liquid and solid contaminants to protect air tools. Features screw-on metal bowl with sight glass for easy maintenance and interchangeable manual or automatic drain. Maximum operating pressure is 250 psig.

B AHR416 Regulator. Adjust and maintain air pressure with snap-lock, non-rising adjustment knob. Pressure adjusts from 0 to 160 psig. Primary operating pressure is 300 psig maximum; secondary is 2 to 125 psig. Temperature is 0° to 175°F (-18° to 79°C).

C AHR418A Lubricator. Meters lubricant into fine mist to coat operating parts of tool. Automatic flow sensing delivers oil in proportion to air flow. Maximum operating pressure is 250 psig. Operating flow range is 2 to 100 SCFM (depending on pipe size).

D AHR420A Integral Filter/Regulator. Combines all the features of the AHR414A and AHR416 above. Less space and less plumbing.

E AHR422 Oil Remover. Removes oil vapor as well as mist particles and sub-micron solid particles from air stream. Oil removing efficiency is 99.9%. Coalescing-type filter element. Screw-on metal bowl. Maximum operating pressure is 250 psig (17.2 Bar.g). Temperature maximum is 175°F (80°C). Pipe size is 1/2". Should use AHR414A filter upstream of AHR422 as a prefilter.

F AHR423 Automatic Drain Valve. When fluid reaches full level, it activates float and drains unwanted oil and water automatically. Can be used in place of manual drain on the following units: AHR414A, AHR418A, AHR420A and AHR422.

G IM10 1/4-Turn Air Valve. Only 1/4-turn of plastic knob shuts off air flow. Housing is made of aluminum. Thread size on male end is 1/4"-18; female end is also 1/4"-18 thread size.

AIR HOSES

H Recoil Hoses. Durable, high quality nylon. Male fittings on each end feature swivel connector for twist free action. Each fitting has hex nut for tightening.

Stock No.	Hose I.D.	Threads Both Ends	Hose Length	Maximum Pressure
AH1	5/16"	1/4"-18NPT	12'	200 psi
AH2	5/16"	1/4"-18NPT	25'	200 psi
AH3	3/8"	1/4"-18NPT	12'	200 psi
AH4	3/8"	1/4"-18NPT	25'	200 psi
•AH5	1/4"	1/4"-18NPT	25'	200 psi
•AH6	1/4"	1/4"-18NPT	50'	200 psi
AH7	3/8"	1/4"-18NPT	50'	200 psi

Whip Hoses. Heavy-duty rubber hoses. Swivel connector on one end (except IM25A and IM55) prevents kinking. Female fitting on other end. Fittings have hex nut for tightening.

Stock No.	Hose I.D.	Threads Both Ends	Hose Length	Maximum Pressure
J •IM20	1/4"	1/4"-18NPT	5'	200 psi
J IM21	3/8"	1/4"-18NPT	5'	250 psi
K †IM25A	3/8"	1/4"-18NPT	25'	200 psi
K †IM55	1/2"	3/8"	50'	250 psi
K †IM50A	3/8"	1/4"-18NPT	50'	200 psi

•Recommended for moderate duty tools only.
†Do not include swivel connectors.



AIR LINE COUPLERS & ADAPTORS

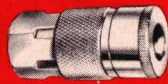
Pneumatic



A



B



C



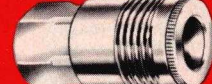
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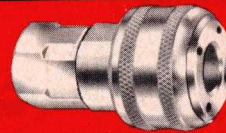
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CAUTION: Always wear approved eye protection when using pneumatic equipment. Inspect equipment for damage before using.

Available in 1/4" and 3/8" sizes, the couplers feature case-hardened lock release sleeves, collars to prevent accidental disconnect and full-opening tubular check valves. Valve seals and stainless steel valve springs provide positive sealing. Male and female adaptors are made of case-hardened steel and feature a hex nut for secure air line attachment. Maximum working pressure of all units below is 300 psig.

Stock No.	Description	Thread Size	Hex Size	Overall Length
"LINCOLN" DESIGN				
A	AHC26 Quick Coupler	1/4"-18	3/8"	1 53/64"
	AHC26M Male Adaptor	1/4"-18	9/16"	2 1/4"
	AHC26F Female Adaptor	1/4"-18	5/8"	2 1/32"

"TRU-FLATE" DESIGN				
B	AHC24 Quick Coupler	1/4"-18	3/4"	1 53/64"
	AHC24M Male Adaptor	1/4"-18	9/16"	1 5/8"
	AHC24F Female Adaptor	1/4"-18	5/8"	1 13/32"
C	AHC25 Quick Coupler	3/8"-18	7/8"	2 9/32"
	AHC25M Male Adaptor	3/8"-18	1 1/16"	2 29/32"
	AHC25F Female Adaptor	3/8"-18	1 3/16"	1 11/16"

"ARO" DESIGN				
D	AHC23 Quick Coupler	1/4"-18	3/4"	1 55/64"
	AHC23M Male Adaptor	1/4"-18	9/16"	1 5/8"
	AHC23F Female Adaptor	1/4"-18	5/8"	1 13/32"

Stock No.	Description	Thread Size	Hex Size	Overall Length
†"INDUSTRIAL INTERCHANGE" DESIGN				
E	AHC21 Quick Coupler	1/4"-18	3/4"	1 53/64"
	AHC21M Male Adaptor	1/4"-18	9/16"	1 23/32"
	AHC21F Female Adaptor	1/4"-18	5/8"	1 1/2"
F	AHC22 Quick Coupler	3/8"-18	7/8"	2 7/32"
	AHC22M Male Adaptor	3/8"-18	5/8"	1 7/8"
	AHC22F Female Adaptor	3/8"-18	1 3/16"	1 11/16"

†Comply with Mil. Spec. Mil-C-4109D.

RIGID MOUNTING COUPLERS

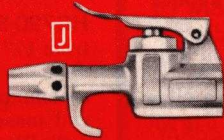
G Rigid Couplers. Made of brass, these quick couplers are designed to replace the AHC21 and AHC22 Industrial Interchange Couplers above on air piping systems only. They are required for rigid mounting.

Stock No.	Description	Thread Size	Hex Size	Overall Length
AHC21P	Rigid Coupler	1/4"-18	3/4"	2"
AHC22P	Rigid Coupler	3/8"-18	7/8"	2"

PRESSURE BLOW GUNS



H



J



L



K



M



N

H Pistol-Type Air Blow Guns. Allow full line or partial volume of air. Dual air inlets at rear of the top and bottom of handle. Interchangeable plug seals unused inlet. Guns meet OSHA requirements. Nozzles are side vented. Front hanging hooks for storage. Includes JT321-4S Standard Nozzle.

JT323S. Lock-nut trigger air control.

JT321S. Instant spring adjustment air control.

Pressure Blow Guns. Triggers regulate air flow from partial to full line pressure. Valve has no cutoff and no restrictions. Include side vented nozzles. Guns meet OSHA requirements.

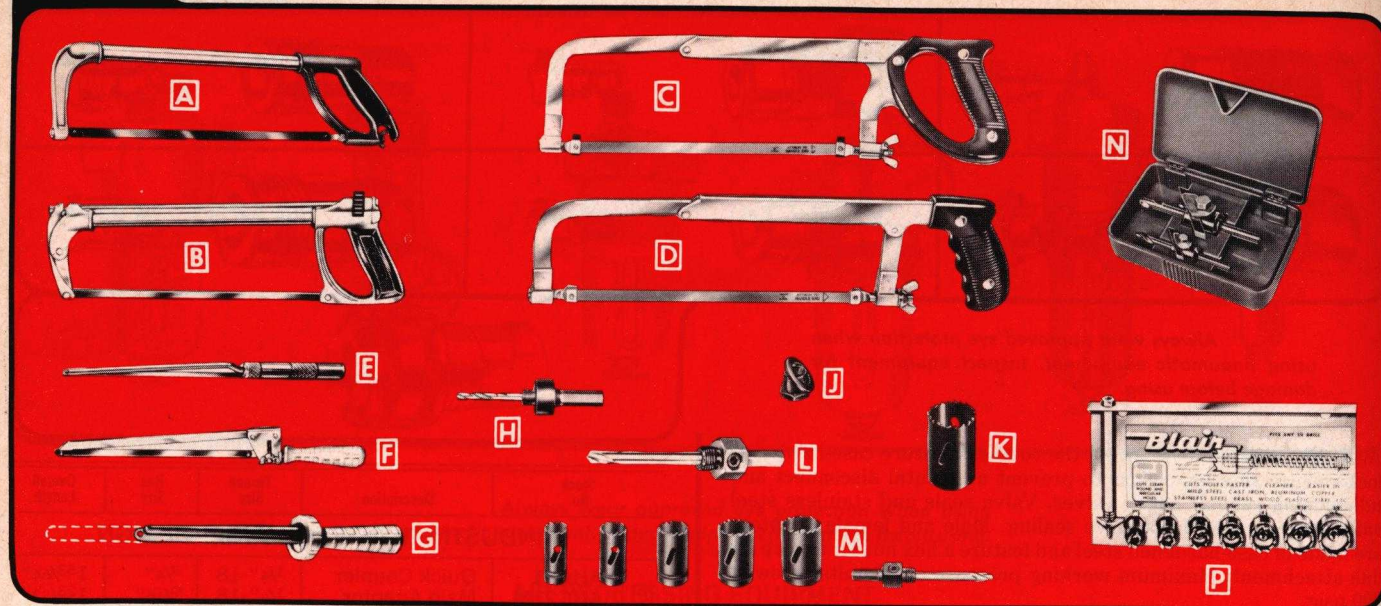
J JT10AS Standard Gun. 2 7/8" long

K JT11AS Long Gun. 4" tube, 6 1/2" long.

L JT12AS Extra Long Gun. 9 7/8" tube, 12" long.

M GA299 Air-Solvent Gun. Can be used with air alone for self-cleaning. 8' hose draws solvent into gun. Covering prevents heat transfer to hand when used with hot water. Operates without adjustment on air pressure from 35 to 175 pounds. 10 1/2" shaft. Attach to any air hose with 1/4"-18 male adaptor.

N GA133B Sand Blast Gun. Removes scale, rust, paint and dirt. Also acts as liquid blast gun. Will siphon liquids directly from drum. Uses air pressure of 60 to 150 psi. Air consumption is 5.25 cfm at 60 psi, 6.65 cfm at 80 psi and 8.06 cfm at 100 psi. Equipped with DIAMONITE nozzle and hardened steel jet. Handles abrasives from 16 to 1000 grit sizes.



HACKSAW FRAMES

A HS14 Fixed Length Hacksaw. Overall length 16 $\frac{3}{4}$ " designed for 12" blades (one included). Features strong lightweight frame.

B HS12 Deluxe Frame. O. L. 16", uses 12" blades. Blades stored in handle. Cuts flush against flat surface either parallel or at right angles to it.

C HS8A Quality Frame. Designed for 10" or 12" blades and adjusts to 4 different angles.

D HS7 Pistol Grip Frame. Accepts 10" or 12" blades. Adjusts to 4 different angles.

E HS151 Junior Frame. O. L. 9 $\frac{1}{2}$ " Blade: 6" long, $\frac{3}{16}$ " wide, 32 teeth per inch.

HSB632A Packet of Ten Blades. For HS151.

F HS3 Low Clearance Hacksaw. Overall length 16 $\frac{3}{4}$ " designed for 10" blades. Cuts through narrow openings as small as 1" in diameter.

G HS13 Jab Saw. Reaches up to 6" into $\frac{3}{4}$ " diameter hole. Twisting handle controls blade movement. Blade extends to 10" reach.

HACKSAW BLADES

Made of heat treated Tungsten alloy steel for hardness and flexibility.

Package (10 Blades) Stock No.	Length	Teeth per Inch	Package (10 Blades) Stock No.	Length	Teeth per Inch
HSB1024	10"	24	HSB1224	12"	24
HSB1032	10"	32	HSB1232	12"	32
HSB1218	12"	18			

Molybdenum high speed steel blades with back of blade annealed to make it virtually unbreakable.

Package (10 Blades) Stock No.	Length	Teeth per Inch	Package (10 Blades) Stock No.	Length	Teeth per Inch
HSS1018	10"	18	HSS1214	12"	14
HSS1024	10"	24	HSS1218	12"	18
HSS1032	10"	32	HSS1224	12"	24
			HSS1232	12"	32

HOLE CUTTERS AND ACCESSORIES

CAUTION: Wear approved eye protection when using power tools.

H HOLE SAW ARBORS and DRILL

LHS1A Arbor. Fits $\frac{9}{16}$ " to 1 $\frac{1}{2}$ " saws, $\frac{1}{2}$ " hex shaft.

LHS2A Arbor. Fits 1 $\frac{1}{4}$ " to 2 $\frac{3}{8}$ " saws, $\frac{1}{2}$ " hex shaft.

LHS3A Arbor. Fits 1 $\frac{1}{4}$ " thru 6" saws, $\frac{7}{16}$ " hex shaft. Pinned arbor for strength.

LHS5A Arbor. Fits $\frac{9}{16}$ " to 1 $\frac{1}{2}$ " saws, $\frac{1}{4}$ " round shaft.

LHS6A Arbor. Fits $\frac{9}{16}$ " to 1 $\frac{1}{2}$ " saws, $\frac{3}{8}$ " hex shaft.

LHS4A Pilot Drill. For above arbors, $\frac{1}{4}$ " dia.

J ARBOR ADAPTOR

LHS8A Arbor Adaptor. Converts $\frac{1}{2}$ "-20 arbor thread sizes to $\frac{5}{8}$ "-18 for use with hole saws having 2 $\frac{3}{8}$ " to 6" diameter. Use with LHS6A above for light cutting applications.

K HOLE SAWS

High speed cutting edge welded to alloy steel back to absorb shocks. Designed to cut clean, accurate holes on steel and cast iron pipe, steel plates, aluminum, copper, brass, stainless steel, wood or plastic. Side slits permit cutting removal.

Stock No.	Dia.	Stock No.	Dia.	Stock No.	Dia.
LHS18A	9/16"	LHS54A	1 11/16"	LHS108A	3 3/8"
LHS20A	5/8"	LHS56A	1 3/4"	LHS112A	3 1/2"
LHS22A	1 1/16"	LHS58A	1 13/16"	LHS116A	3 5/8"
LHS24A	3/4"	LHS60A	1 7/8"	LHS120A	3 3/4"
LHS26A	13/16"	LHS64A	2"	LHS124A	3 7/8"
LHS28A	7/8"	LHS66A	2 1/16"	LHS128A	4"
LHS30A	15/16"	LHS68A	2 1/8"	LHS132A	4 1/8"
LHS32A	1"	LHS72A	2 1/4"	LHS136A	4 1/4"
LHS34A	1 1/16"	LHS74A	2 5/16"	LHS140A	4 3/8"
LHS36A	1 1/8"	LHS76A	2 3/8"	LHS144A	4 1/2"
LHS38A	1 3/16"	LHS80A	2 1/2"	LHS148A	4 3/4"
LHS40A	1 1/4"	LHS82A	2 9/16"	LHS152A	5"
LHS42A	1 5/16"	LHS84A	2 5/8"	LHS160A	5 1/4"
LHS44A	1 3/8"	LHS88A	2 3/4"	LHS168A	5 1/2"
LHS46A	1 7/16"	LHS92A	2 7/8"	LHS176A	5 3/4"
LHS48A	1 1/2"	LHS96A	3"	LHS184A	6"
LHS50A	1 9/16"	LHS100A	3 1/8"		
LHS52A	1 5/8"	LHS104A	3 1/4"		

L REPLACEMENT PILOT DRILL BIT

LHS7A Pilot Drill. A high speed replacement pilot drill bit to be used with the LHS5A and LHS6A Arbors at left. The drill bit is $\frac{1}{4}$ " in diameter, 3 $\frac{1}{8}$ " in length (pictured with arbor).

M LHS606 HOLE SAW KIT

Designed to cut holes through machinable materials such as: plastics, fiberglass and light sheet metals. Set includes arbor with $\frac{3}{8}$ " shank and chuck size, $\frac{1}{4}$ " pilot drill and 5 hole saws in $\frac{3}{4}$ ", $\frac{7}{8}$ ", 1" 1 $\frac{1}{8}$ " and 1 $\frac{1}{4}$ " diameters.

N ADJUSTABLE HOLE CUTTERS

HC790 Set. Includes two tools to cut holes from $\frac{5}{8}$ " to 2 $\frac{1}{2}$ " diameter and $\frac{1}{8}$ " to $\frac{3}{8}$ " deep in sheet metal, brass, copper and aluminum and deeper holes in plastic, wood and masonite. Use with electric or hand drill. Plastic case included.

Stock No.	Size Shank	Diameter Capacity	Depth Capacity	Pilot Drill
HC100	1/4"	5/8" to 1 1/2"	up to 1/8"	1/4"
HC101	3/8"	1" to 2 1/2"	up to 3/8"	3/8"

HC100-1 Extra Blade for HC100.

HC101-1 Extra Blade for HC101.

P HOLE CUTTER KIT

GA219. Cuts holes in mild steel, cast iron, aluminum, copper, stainless steel, wood, plastic and fiber up to $\frac{1}{4}$ " thick. Also removes spotwelds and cuts heads off bolts, screws or rivets. Set includes arbor body, four pilots, depth stop rod, adjustment screw and blades in $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{9}{16}$ " and $\frac{5}{8}$ " diameters. $\frac{1}{4}$ " diameter arbor used in any $\frac{1}{4}$ " drill. Metal holder included.



LOCK-BACK KNIVES

Single bladed knives lock blades in open position. Thumb lock releases for storage. Comfort curved handles. YA813 and YA823 have plastic handles, while YA821 and YA822 have laminated hardwood handles.

Stock No.	Closed Length	Blade Length
A YA822	27/8"	2 1/2"
B YA821	4"	3 1/8"
C YA813	4"	3 1/8"
D †YA823	5"	3 3/4"

▲YA812 Leather Sheath is optional.
†YA823-1 Leather Sheath is included.

OLD TIMER® KNIVES

E YA113 Pocket Knife. Has 3 blades: 2 1/8" turkish clip blade, 1 1/16" spey blade and 1 5/16" pen blade. Closed length is 3 5/16."

YA852 Pocket Knife. Has 3 blades: 2 1/8" clip blade, 1 1/2" sheepsfoot blade and 1 3/8" pen blade. Closed length is 2 3/4."

F YA851 Lock-Blade. Single lock clip blade with brass lock. Blade is 2" long. Closed length is 2 3/4."

YA854 Lock-Blade. Single lock clip blade is 3 1/8" long. Includes brass lock clip. Closed length is 3 7/8."

G YA850 Rigid Blade. Has single 3" drop point blade of high carbon steel. 6" in overall length. Includes leather sheath.

SCRIMSHAW® KNIVES

Each knife features plastic whale tooth handles with various wildlife scenes depicted on them.

H YA860 Lock-Blade. Clip blade is 4 3/16" long. Brass locking clip. Closed length is 5 1/4."

J YA863 Small Lock-Blade. Clip blade is 3 1/8" long. Brass locking clip. Closed length is 3 7/8."

K YA868 Folding Hunter. Has 2 blades: 4 1/8" clip blade and 4" boning blade. Closed length is 5 1/4."

L YA865 Multi-Blade. Has 3 blades: 3" clip blade, 2 1/8" sheepsfoot blade and 2 1/8" spey blade. Closed length is 4"

M YA866 Barlow. Has 2 blades: 2 1/2" clip blade and 1 3/4" pen blade. Closed length is 3 1/2."

N YA861 Rigid Blade. Drop point blade is 3 1/2" long. Knife is 7 1/4" in overall length. Includes protective leather sheath.

SPECIAL PURPOSE KNIVES

P YA856 Pocket Knife. Has 3 blades: 3" turkish clip blade, 2 1/4" sheepsfoot blade and 2 1/8" spey blade. Closed length is 4"

YA855 Pocket Knife. Smaller companion to YA856 above...turkish blade is 2 1/8", 2" sheepsfoot and 2" spey. Closed length is 3 9/16."

Q GA198 Barlow Knife. Has 2 blades: 2 1/2" sheepsfoot blade and 1 3/4" pen blade. Closed length is 3 1/2."

R YA853 Barlow Knife. Has 2 blades: 2 1/2" clip blade and 1 3/4" pen blade. Closed length is 3 5/8."

S YA857 Electrician's Knife. Features 2 3/4" spear blade and 2 7/8" screwdriver blade with brass lock clip. Handle has a belt loop and is 3 3/4" long.

T YA443 Lineman's Knife. Special utility blade for cutting and scraping copper wire insulation. Blade is 3 3/16" long. Closed length is 4 7/16". Includes belt loop.

U YA819 Small Pocket Knife. Has 2 blades for slitting radiator hoses, cutting tubing or gaskets, etc. Blade lengths are 1 5/8" and 1 1/4."

V GA169 Utility Knife. Stores 5 double-pointed blades in handle. Safety lock secures blade in any of 4 positions...including fully closed.

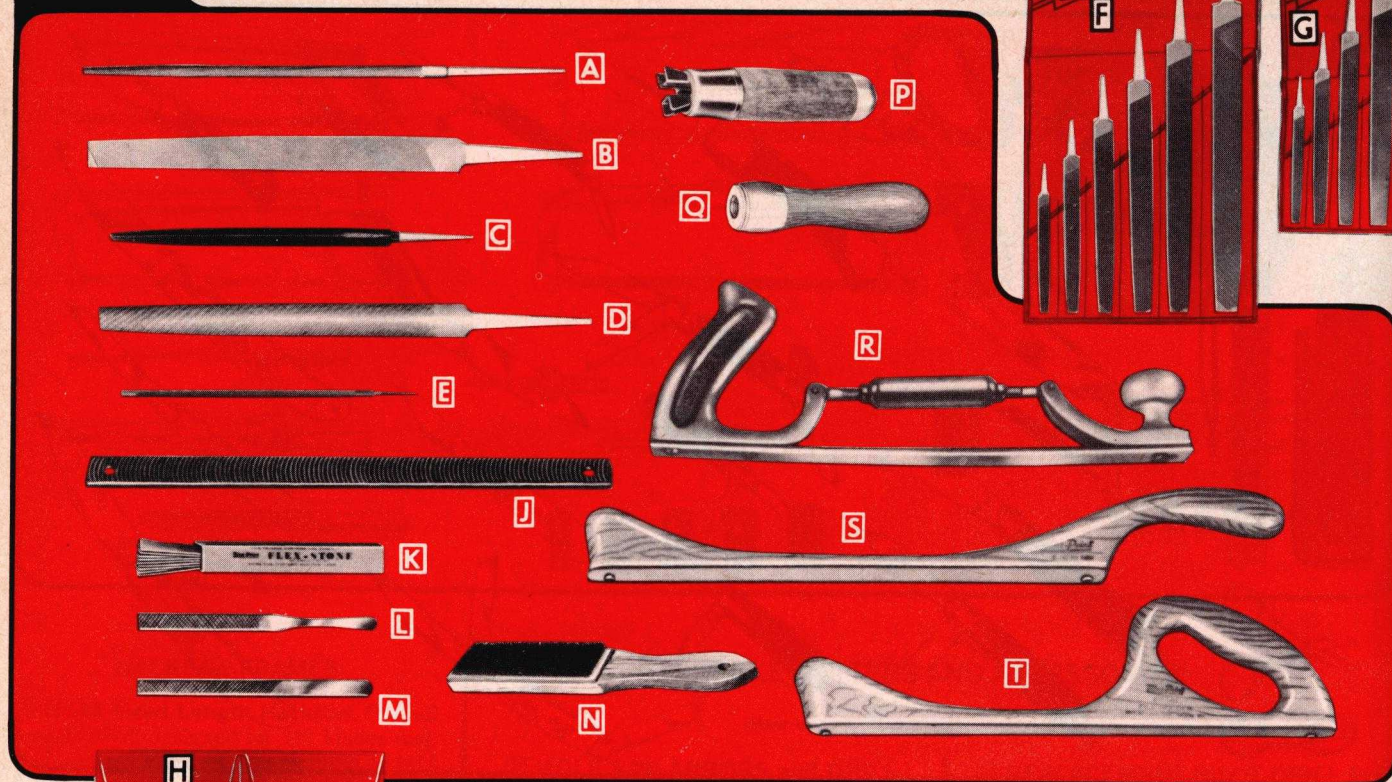
GA169-5. Set of 5 Replacement Blades.

KNIFE SHARPENER

W YA820. Spring tempered steel hone is 7" long and 1" wide. Leather sheath also serves as a handle. Can also serve as a pry bar or a chisel; wear approved eye protection when using in these application.

FOLDING SCISSORS

X YA114. Handles pull apart and fold into cutting position. Scissors are only 3" long. Shown both open and closed.



The following files are made from high-grade alloy steel and heat treated for strength. Teeth are cut with uneven spacing for smoother cutting and self-cleaning action.

Overall Length	A Round Files		B Mill Files		C Triangular Files		D Half-Round	E Chain Saw Files	
	Stock No.	Diam.	Stock No.	Cut Length	Stock No.	Cut Length		Stock No.	Diam.
4"	...	...	4MA	3 3/4"	...	...	...	...	...
6"	6R	7/32"	6MA	5 1/2"	6T	5 1/2"	6HR	•6CR	5/32"
8"	8R	9/32"	8MA	7 1/2"	8T	7 1/2"	8HR	•8CR	7/32"
10"	10R	3/8"	10MA	9 1/2"	10T	9 1/2"	10HR	...	...
12"	12R	1/2"	12MA	11 1/2"	...	...	12HR	...	...
14"	...	...	14MA	13 1/2"	...	...	...	...	...
16"	...	...	16MA	15 1/2"	...	...	...	...	...

• Single cut files; all others above are Bastard cut.

F HBM60L Mill File Set. Includes 6MA, 8MA, 10MA, 12MA, 14MA and 16MA Files in **C66C** Kit Bag.

G HBM40L Mill File Set. Includes 6MA, 8MA, 10MA and 12MA Files in **C46C** Kit Bag.

H HBN120 Swiss Needle File Set. 12 needle files feature round, knurled handles. Each is 5 1/2" long and is "0" cut for extra fine

HBH40K Half-Round File Set. Includes 6HR, 8HR, 10HR and 12HR Files in **C46C** Kit Bag.

HBR40K Round File Set. Includes 6R, 8R, 10R and 12R Files in **C46C** Kit Bag.

filing. Set includes all files listed below packaged in a plastic pouch.

Stock No.:	5NR	5NHR	5NF	5NC	5NK	5NSQ	5NTS	5NE	5NB	5NJ	5NS	5NM
Style:	Round	Half Rd.	Flat	Crossing	Knife	Square	3-Square	Equaling	Barrette	Joint	Slitting	Marking
Shape:												

J FLEXIBLE CURVED TOOTH FILES

Stock No.	Teeth per Inch	Overall Length
14V	8	14"
▲14VHR	8	14"
14V7	7	14"
14V6	6	14"

▲Shell-Type Half-Round File.

K BF775B Flex Stones. Non-conductive. Plastic material embedded with vitrified abrasive. Package of 12.

GA3 Thickness: .050" **GA43** Thickness: .025"

L HB5 Spark Plug File. Fine, single cut tungsten file for spark plug and other contact points.

M HB2470 Voltage Regulator Point File. Extra thin with fine cut. 5" long, 5/16" wide, .015" thick.

N AC8A File Card Brush. 3/16" long bristles angled to clean file threads. Bristle area 3 3/4" x 1 1/2"; wood handle 8 1/2" long.

P GA98 File Handle. Provides a large, comfortable grip for **A** thru **E** above. Adjustable jaws grip file so it can't turn. 4 1/2" long, 1" in diameter; 3/8" maximum opening.

Q Wood File Holders. Hardened steel thread cutting insert secured in place with metal ferrule.

Stock No.	For Files:
GA403	6R, 6CR
GA404	4MA, 6MA, 6HR, 6T, 8R, 8CR
GA406	8MA, 8HR, 8T, 10MA, 10HR, 10R, 12R
GA408	10T, 12MA, 12HR, 14MA, 16MA

FILE HOLDERS for 14V SERIES FILES

R BF775B Flexible-Type. Light and rigid with large aluminum handle and adjustable turnbuckle. Permanently attached strap.

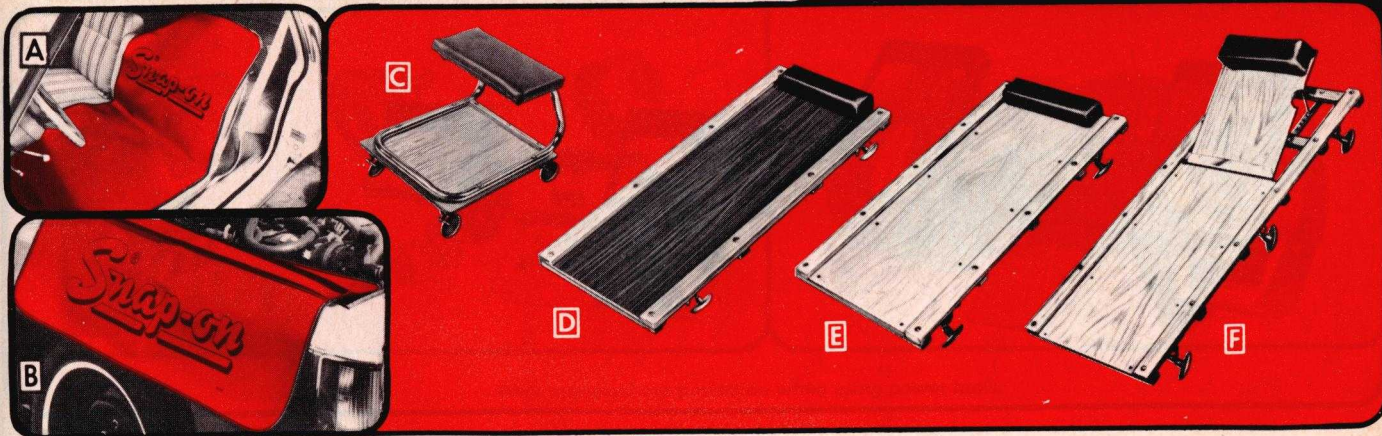
S BF142 Straight-Type. Made from hard maple. Narrow to allow file overhang. File can be convex by inserting wedge.

T BF141 Saw-Type. Same features and applications as BF142 above, except with different handle configuration.

Body files are on page 233.

COVERS & CREEPERS

Covers/Creepers/Sales Aids



SEAT and FENDER COVERS

Made of rubberized fabric that resists oil, solvents and battery acid, these covers are bonded to 1/16" thick non-slip sponge rubber bases. And each cover is clearly imprinted with a series of safety tips.

A CK15C Seat Cover. Big enough to cover both the seat and back rest. Measures 51" long and 30" wide.

B CK7C Fender Cover. Raised ribbing along a center section provides useful tool holding space plus easy access to the tools. Measures 38" x 25"

CK6C Fender Cover (not shown). Includes a 3-section tool pocket that measures 30" x 5". The pocket hangs down inside the fender and provides a convenient holder for small tools. The cover measures 47" x 22" overall.

WORK STOOLS and CREEPERS

C JCN20A Stool. Made of wood and supported with heavy tubular steel. Rear cross bar keeps small parts and tools from rolling off. Padded seat cover. 4 nylon swivel casters. Measures 18 1/2" long, 14" wide, 13 1/2" from floor.

JCN19A Stool. Identical to JCN20A, except seat isn't padded.

D JC1 Basic Creeper. Includes 4 bolted-on rails for support and vinyl-covered poly-foam headrest for comfort. 4 steel casters (2 1/2" diameter) provide mobility and strength. 36" long.

E JC3 Standard Creeper. Tougher version of JC1 above, except it has 5 bolted-on rails for added strength. Its 4 steel casters are 3" in diameter. Measures 36" x 16"

F JC5 Adjustable Creeper. Same sturdy construction as other units above, except it also includes a 4-position adjustable headrest, plus even more support with 6 bolted-on rails and 6 steel casters (3" diameter). 42" long.

SALES AIDS

CURB SIGN

G SS312A Curb Sign. Includes 5 panels illustrated at right. Telescopes to 76" high. Steel base is 35 3/4" wide and 50" long. Panels swing on spring-loaded steel rods.

REPLACEMENT PANELS

SS312A1 Wheel Alignment.
SS312A2 Wheel Balancing.

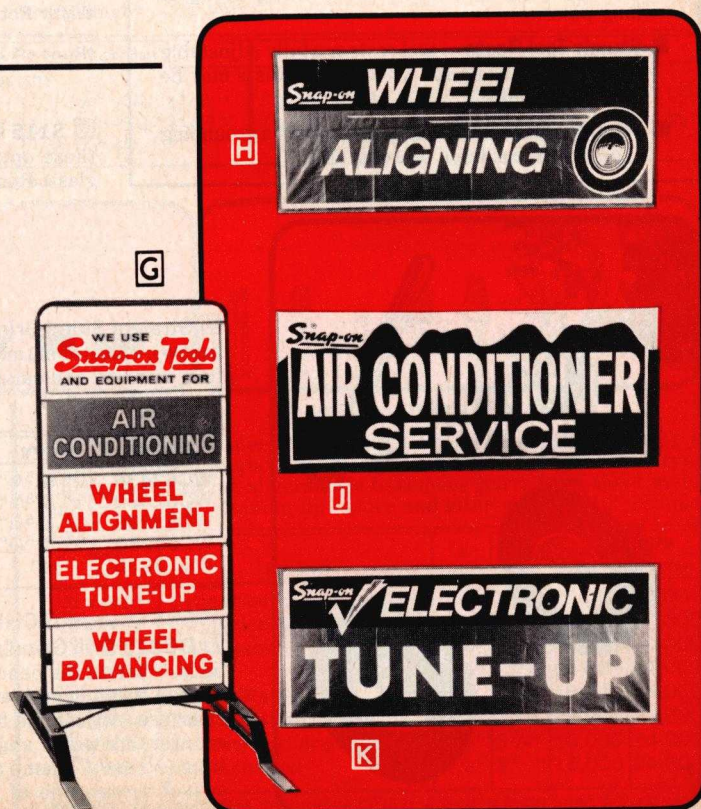
SS312A3 Electronic Tune-Up.
SS312A4 Air Conditioner.

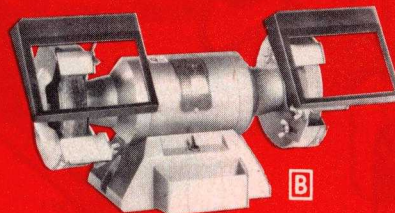
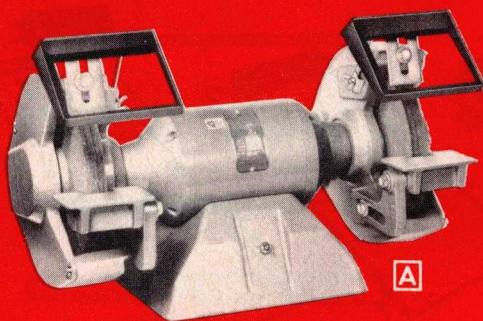
BANNERS

H SS459 Wheel Aligning Banner. 34" x 82" banner made of weather-resistant plastic with 60" ropes at corners for hanging. White letters on red/blue background.

J SS444C Air Conditioner Service Banner. 34" x 82" banner made of .008" plastic sewn to 60" ropes for hanging. White letters on blue background.

K SS461 Electronic Tune-up Banner. 34" x 82" banner made of weather-resistant plastic with 60" ropes at corners for hanging. White letters on red/blue background.





BENCH GRINDER FEATURES

- **Dual Voltage Motor**... just change internal connections on 1/3, 1/2, 3/4 and 1 H.P. models to change from 115 to 230 volts.
- **Completely Enclosed Motor**... the super-powered, precision balanced motor is enclosed to prevent dirt and grit from entering the motor or bearings.
- **Ball Bearing Construction**... the oversized labyrinth grease sealed ball bearings used throughout assure smooth, long lived motor operation.
- **Large Wheel Guards**... wide, enclosed types of wheel guards provide protection and allow the use of special shaped wheels or wire brushes. The rear outlet can be connected to industrial exhaust systems. The guards are easily removed to permit changing wheels and are furnished with adjustable spark arrestors and eyeshields.
- **Illuminated Eyeshields**... adjustable, heavy duty, illuminated eyeshields on the 1/2, 3/4, and 1 H.P. models... standard eyeshields on the others.
- **Bell-Type Construction**... allows the grinding of long pieces.
- **Sturdy Tool Rests**... tool rests are fully adjustable with angle take-up for wheel wear. Rests may be tilted from 0-60°.
- **Wiring**... each grinder is equipped with a grounding type 3-wire cord and 3-prong plug.

CAUTION: Always wear approved eye protection when operating bench grinders. Don't grind on side of wheel. Don't operate without eyeshields, guards and holders in place.

BENCH GRINDERS Standard Models	A BG1000G	A BG750G	A BG500G	B BG333G	B BG250G
Motor Rating	1 H.P.	3/4 H.P.	1/2 H.P.	1/3 H.P.	1/4 H.P.
Voltage	115/230	115/230	115/230	115/230	*
Hertz	60/50	60/50	60/50	60/50	*
No Load RPM—					
at 60 Hz	1725	3450	3450	3450	3450
at 50 Hz	1425	2850	2850	2850	—
Phase	1	1	1	1	1
Arbor Size	3/4"	3/4"	5/8"	1/2"	1/2"
Wheel Diameter	10"	8"	7"	6"	6"
Wheel Face	1"	1"	1"	3/4"	3/4"
Wheel Grit	36 & 60	36 & 60	36 & 60	36 & 60	36 & 60
Base Size	11 1/2" x 9 1/2"	10 1/2" x 8 1/2"	9 3/4" x 6 3/4"	8 1/2" x 6"	8 1/2" x 6"
Overall Length	23"	20 1/4"	19"	17"	17"
Overall Height	13 1/2"	11 3/4"	9 3/4"	9 1/2"	9 1/2"
Motor Type	Capacitor Start	Capacitor Start	Capacitor Start	Split Phase	Split Phase
Shipping Weight Lbs.	105	64	51	29	28
Eyeshields	Lighted Heavy Duty	Lighted Heavy Duty	Lighted Heavy Duty	Regular	Regular
Water Pot	No	Yes	Yes	Yes	Yes

*Runs off 115V, 60Hz power supply only; 230V, 50 Hz model not available.

EYESHIELDS for OLDER MODELS

☐ **S115 Pair of Eyeshields.** Designed for use on earlier version bench grinders, these optional eyeshields measure 3' x 5" each and are made of shatterproof glass. Removable for special jobs. *Comply with Fed. Spec. G-W-656D.*

BENCH GRINDER ACCESSORIES
GRINDING WHEELS

☐ **Straight Sided Grinding Wheels (listed below).** Natural aluminum oxide abrasive, fully vitrified and balanced for fast cutting. Bushings included.

☐ **WC63260R Recessed Grinding Wheel.** Same as WC63260 below, except it's recessed for use with drill grinding attachments. See WC63260 for specifications.

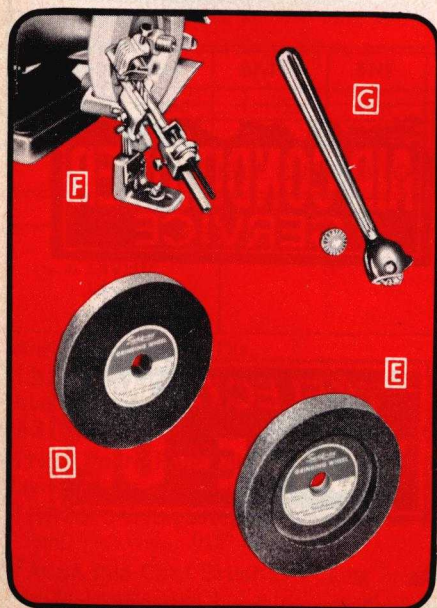
Stock No.	Bushing	Arbor	Grit	Dia.	Width	Stock No.	Bushing	Arbor	Grit	Dia.	Width
WC62436	1/2" & 5/8"	3/4"	36	6"	3/4"	WC73260	5/8"	3/4"	60	7"	1"
WC62460	1/2" & 5/8"	3/4"	60	6"	3/4"	WC83236	5/8" & 3/4"	1"	36	8"	1"
WC63236	1/2" & 5/8"	3/4"	36	6"	1"	WC83260	5/8" & 3/4"	1"	60	8"	1"
WC63260	1/2" & 5/8"	3/4"	60	6"	1"	WC103224	3/4" 1" & 7/8"	1 1/4"	24	10"	1"
WC73236	5/8"	3/4"	36	7"	1"	WC103246	3/4" 1" & 7/8"	1 1/4"	46	10"	1"

ATTACHMENT

☐ **DG825 Drill Grinding Attachment.** Can be fastened to the bench with only one bolt and can be left in position or quickly removed after use. Adjustable for 49, 59, 68, 88 and countersink point angles. Handles drills from 1/8" to 3/4". Clamp drill in V-groove and swivel across side of grinding wheel for accurately angled sharpening.

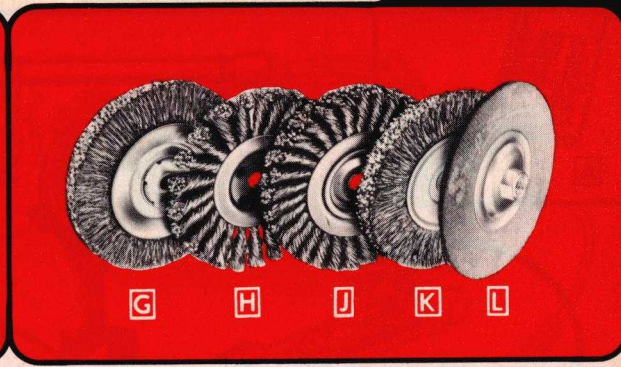
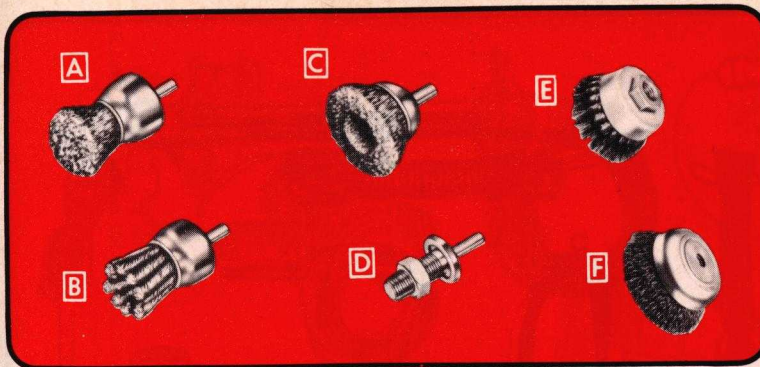
DRESSER

☐ **WD12 Wheel Dresser.** Removes glaze and trues up wheel. New cutters can be easily inserted. Hood protects cutter. *Meets Fed. Spec. GGG-D-631A.*



BRUSHES, BURRS & ABRASIVES

Grinding



CAUTION: Wear approved eye protection when using power tools.

A Crimped Wire Brushes. Made of .020" gauge high tensile crimped wire. 1/4" diameter shank. For removing carbon from cylinder heads and valve parts.

AC2. 1 1/8" diameter brush.

AC3. 3/4" diameter brush.

AC4. 1/2" diameter brush.

AC16 (3/4" Dia.) Solid Type End Brush. Similar to AC3 above, but has .006" wire size. Ideal for cleaning aluminum cylinder heads and transmission parts.

B AC7A (1 1/8" Dia.) Spiral Twist Brush. Tightly twisted spiral of .020" steel wire. 1/4" stem. Removes heavy deposits.

C AC240 (1 5/8" Dia.) Cup Type Brush. Crimped .013" steel wire looped into hub. 1/4" dia. arbor. For cleaning tire rims or scuffing inside of tire before cementing patch.

AC241 (2 3/4" Dia.) Hollow End Crimped Cup Brush. Designed for light cleaning. Made of high quality oil tempered steel. 1/2" arbor. .0118" wire. 4500 maximum rpm.

D A24 Arbor Adaptor. 1/4" diameter shank. Adapts electric drill to light grinding and wire brushing. Arbor is 1/2" diameter. Use with brushes and wheels up to 4"

E Knot Type, Single Row Wire Cup Brushes. For heavy duty surface applications. Made of tempered stainless steel. Arbor size is 5/8"-11, Maximum rpm is 7,000.

AC341. 3" diameter, .014" wire.

AC342. 4" diameter, .020" wire.

F Crimped Wire Cup Brushes. Crimped wire form provides continuous brushing action and relatively fine finish. For light duty cleaning. Maximum rpm is 7,000.

AC343. 4" diameter, .014" wire.

AC344. 5" diameter, .020" wire.

G Wire Wheels. Crimped bristles help prevent bending or breaking and are anchored without welds or crimps in flanges. .014" wire.

Twisted Tuft Wire Wheels. Tufts are 1 1/4" long. AC614 tufts twisted all the way thru ...other wheels have tufts twisted about 2/3 of their way.

St. No.	Diam.	Width	Wire	Arbor Hole
H AC614	6"	7/16"	.016"	1/2," 5/8"
▲ H AC618	6"	9/16"	.0118"	1/2," 5/8"
J AC632	6"	1"	.0118"	1/2," 5/8," 2"

K Narrow Face Wire Wheel. Multi-duty brush for deburring, rust removal and finishing...plus other applications.

St. No.	Diam.	Width	Wire	Arbor Hole
▲ AC17	6"	1/2"	.006"	1/2," 5/8"

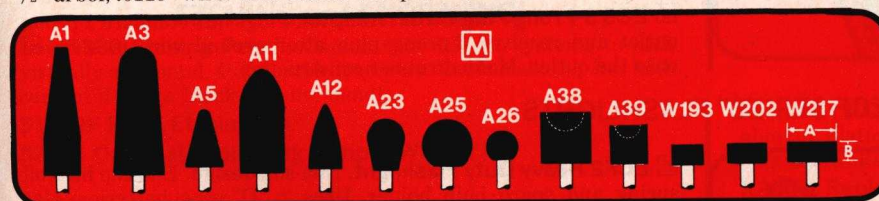
L Grinding Discs. Reinforced discs are made of several layers of material and grit bound together. One-piece construction. Arbor size is 5/8"-11.

RDH7247A. 7" diameter disc.

RDH9247A. 9" diameter disc.

St. No.	Diam.	Width	Arbor Hole	St. No.	Diam.	Width	Arbor Hole
HEAVY DUTY				STANDARD DUTY			
▲ AC26A	6"	1 1/8"	1/2," 5/8," 3/4," 1 1/2"	▲ AC414A	4 1/4"	3/4"	1/2," 5/8," 3/4," 1 1/2"
▲ AC27A	7"	1 1/4"	1/2," 5/8," 3/4," 1 1/2"	▲ AC33B	6"	3/4"	1/2," 5/8," 3/4," 1 1/2"
▲ AC28A	8"	1 3/8"	1/2," 5/8," 2"	▲ AC1032	10"	1 5/32"	3/4"

*AC33A1A Adaptor required.

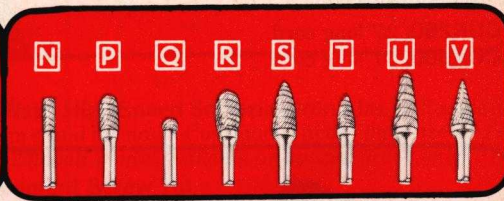


M MANDREL-MOUNTED ABRASIVE WHEELS

Use with portable drills and high speed grinders. Dressed true to mandrel. 1/4" shanks.

Shape No.	Stock No.	Grit	Diameter A	Thickness B	Shank Length	Maximum RPM
A1	VWB101	46	3/4"	2 1/2"	1 1/2"	26,400
A3	VWB102	46	1"	2 3/4"	1 1/2"	24,000
A5	VWB103	60	3/4"	1 1/8"	1 3/8"	45,000
A11	VWB104	46	7/8"	2"	1 1/2"	29,200
A12	VWB105	60	1 1/16"	1 1/4"	1 7/16"	42,000
A23	VWB106	60	3/4"	1"	1 7/16"	45,000
A25	VWB107	60	1"	1"	1 9/16"	36,500
A26	VWB108	60	5/8"	5/8"	1 5/8"	47,000
A38	VWB109	60	1"	1"	1 1/2"	35,000
A39	VWB110	60	3/4"	3/4"	1 1/2"	47,000
W193	VWB111	60	5/8"	3/8"	1 5/8"	47,000
W202	VWB112	60	3/4"	3/8"	1 5/8"	40,800
W217	VWB113	60	1"	3/8"	1 5/8"	36,000

▲ Fed. Spec: H-B-0071A applies to heavy duty and standard wheels, H-B-7716 to AC618 wire wheel and H-B-771P to AC17.

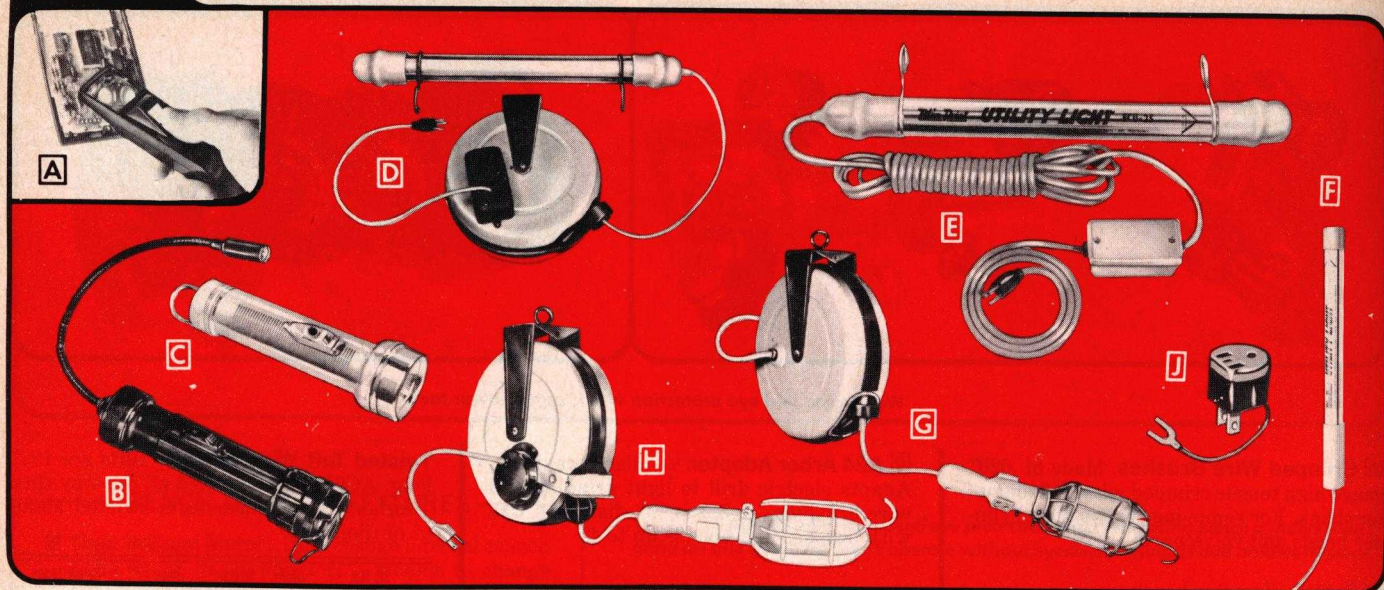


GRINDING BURRS

Use in 1/4" high speed grinders. Solid carbide heads (VWB1 is solid carbide throughout) with right hand spiral chip breaker type fluting for reducing slivers. Use to remove burrs from sheet metal and cast iron or cleaning up before and after welding. 1/4" shanks.

Stock No.	Burr Type	Cup Length	Overall Length	Maximum RPM	
				Cast Iron	Stainless
N VWB1	Cylindrical w/Cut End	5/8"	2"	22,000	23,000
P VWB2	Cylindrical w/Radius End	3/4"	2 3/4"	18,000	27,000
Q VWB3	Ball-shaped	1/4"	2"	20,000	30,000
R VWB4	Oval	7/8"	2 7/8"	16,000	24,000
S VWB5	Tree w/Radius End	1"	3"	16,000	24,000
T VWB6	Tree w/Pointed End	3/4"	2 3/4"	18,000	27,000
U VWB7	14° Inclined Angle Taper	1 1/8"	3 1/4"	16,000	24,000
V VWB8	Cone-shaped	7/8"	3"	16,000	24,000

VWB800 Complete Set. Includes all Burrs above in foam-lined plastic case.



CAUTION: Grounding prongs on electrical accessories should never be severed or bypassed so as to engage the plug in a non-grounding type receptacle, as doing so could result in electrical shock. All lights and cords below (except ECU115) operate on 115 volts, 60 Hz AC only.

A YA810 Optical Magnifier Flashlight. Excellent for locating timing marks and serial numbers. Magnifying lens is illuminated by 2 "AAA" batteries (included). Weighs only 2½" oz. 5" long.

B GA481 Inspection Light. 9¼" long barrel. Waterproof. Non-slip grip. 3-position switch. End cap stores spare #14 bulb and has hanging ring. High impact plastic barrel. 13½" long vinyl coated flexible extension. 2 "D" batteries (not included) provide power. Meets the following Federal and Military Specs.: NSN #6230-00-295-2194. MIL-F-3747C, MX-6736/U Type V, Style 1.

C YA115 Magna-Beam Flashlight. Lights an area 10 times as large as other flashlights at distances of 2-20'. Computer designed reflector for excellent diffusion. Uses 2 "D" batteries (not included).

D Reel Type Utility Lights. Moisture and oil resistant cases. 18" 15-watt fluorescent bulbs. Head and cord assemblies from ballast area are fully double-insulated. Floating molded nylon sockets. Also include: 2 hanging hooks, reflector, enclosed switch, plastic coated cord, steel encased spring loaded reel, rubber stop, 2' power cord, ballast transformer.

ECUR250. 25' long cord.
ECUR500. 50' long cord.

E Utility Lights. Grease, oil and vapor resistant. *Not immersible.* In-line isolated ballast, light reflectors, hanging hooks and 3-prong extension cord included. Head and cord assemblies are fully double insulated. Floating, molded nylon sockets. 23" long, 2¼" dia., 115V. *Use 15-watt fluorescent bulb.

ECU250. 25' long cord.

ECU500. 50' long cord.

F Compact Utility Lights. Use 8-watt fluorescent bulbs. 16" long and 1½" in diameter.

ECU115 12V. DC Light. Utilizes battery clips with auto polarity... either clip can be hooked to positive. 15' long cord.

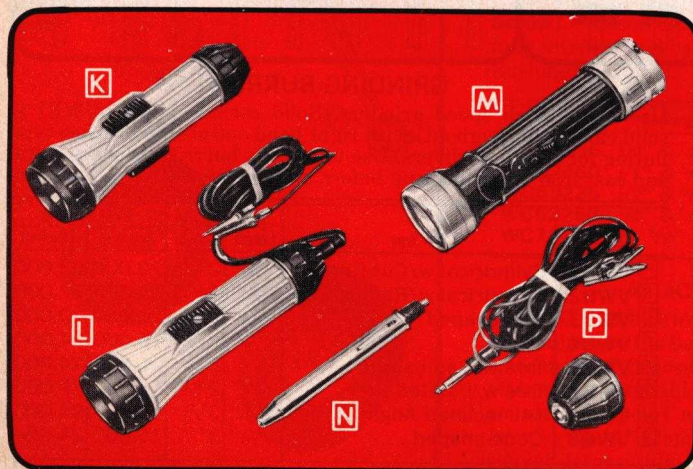
ECU125 115V. AC Light. Has in-line isolated ballast and 3-prong cord. Cord is 25' long.

G ECR450A Trouble Lite Cord Reel. Features 2' power cord with 3-prong plug, 30' of "SJT" 16-gauge, 3-conductor cord and adjustable cord stop. Handle has 3-prong female socket and swinging action guard.

H ECR535 Automatic Trouble Lite Cord Reel. Light turns on by simply drawing cord, turns off by retracting to the cord stop. 2' power cord with 3-prong plug. 35' of "SJT" 18-gauge, 3-conductor cord. Has adjustable cord stop and swinging action guard.

I EC3 3-Prong Plug Outlet Adaptor. Plugs into standard 2-prong outlet and receives 3-prong plug after ground wire is screwed onto the outlet. Molded rubber construction.

"ECF SERIES" FLASHLIGHTS



K ECF2 Heavy Duty Flashlight. Non-slip design. End cap has coil spring and spare bulb holder. Uses 2 "D" size batteries. Has magnet.

ECF1 Heavy Duty Flashlight. Same as ECF2 but without magnet.

L ECF6 Heavy Duty Flashlight and Continuity Tester. Same as ECF2 but it includes end cap with jack receptacle and 2 conductor test lead. (Do not use tester on live current.)

ECF5. Same as ECF6 but without magnet.

M ECF35 Explosion Proof Flashlight. Has push-button and slide type switch. Wide base end cap has steel belt loop and spare bulb holder. UL listed and U.S. Coast Guard and Bureau of Mines approval No. 10C-624.

N ECF20 Penlight. Steel chrome plated. Push-button switch and pocket clip. Operates on 2 "AA" batteries (not included).

P ECF5-1 End Cap and Jack Receptacle Assembly and ECF5-2 Continuity Test Lead. Can be used with any industrial flashlight above.

ELECTRICAL ACCESSORIES

Lights/Etching/Soldering



CAUTION: Grounding prongs on electrical accessories should never be severed or bypassed so as to engage the plug in a non-grounding type receptacle, as doing so could result in electrical shock. All units below operate on 115 volt, 60 Hz AC only.

A EC149 (15') Flood Light. 18-gauge, 2-conductor Type SJT vinyl cord (not grounded). 8½" aluminum reflector. Bulb maximum is 75 watts. UL listed.

B EC301 (25') Extension Light. Polypropylene guard. 18-gauge, Type SJT 2-conductor vinyl cord (not grounded). No switch or tool outlet.

C EC691 (25') & EC692 (50') Extension Lights. Silver metal guards. On-off switch and tool outlet. 16-gauge, Type SJT 3-conductor vinyl cord (grounded). UL listed.

D EC391 (25') & EC392 (50') Extension Lights. Silver metal guards. On-off switch and tool outlets. 16-gauge, Type SJT 3-conductor rubber cord (grounded).

D EC134A (20') Extension Light. Copper plated battery clips allow operation off 12 V. power supply. Includes rubber handle with on-off switch and metal guard, plus a 50-watt, 12 V. DC bulb. 18-gauge.

E EC267 (25') & EC268 (50') Extension Cords. 16-gauge, Type SJT 3-conductor vinyl cord (grounded). UL listed.

F EC825 (25') & EC826 (50') Three-Way Power Block Extension Cords. 14-gauge, Type SJT 3-conductor vinyl cable with ground type plug. UL listed for outdoor and indoor use.



ETCHING and ENGRAVING

G MT330 Etching Pencil. Use on 6 or 12 volt systems to etch virtually any metal. 4½' flexible lead wire. Replaceable tip has high current density. Black bakelite handle.

51902F Extra Etching Tip.

52016 Optional Grounding Jumper Wire (3').

H GA236 Electric Engraver. Marks all materials. Includes solid carbide tip. 220 volt model available on special order only.

GA236-32 Optional Heavy Duty Diamond Tip.

SOLDERING

J R50 (50 Watt) Soldering Iron. For light duty use. Heavy duty industrial element. Narrow, semi-chisel style tip. 3-conductor neoprene cord. Includes metal stand. 120 volts.

R50-1 Replacement Tip.

K R75 (75 Watt) Pistol Grip Soldering Iron. Hermetically sealed nichrome wound element. Removable copper tip. Wire cradle supports hot tip. Tip size is ⅝" 120 volts. 10¼" long.

R75-2 Replacement Tip.

L R300 (300 Watt) High Speed Soldering Iron. Has 1⅝" replaceable tip. Platform stand included. Continuous heavy duty use. 14½" long. 120 volts. 220 volt model available on special order only.

R300-1 Replacement Screw Tip.

M R250 (250 Watt) Instant Heat Soldering Gun. Heavy duty gun heats to solder melting temperature in 3 seconds. "Feraloy" plated tip resists bending, cools rapidly and remains tinned indefinitely. Full wattage at tip without arcing or burning. Spotlight on housing. Side ventilation for transformer. 6' cord with metal strain relief. 120 volts.

R250-5 Replacement Bulb.

R250-20 Replacement "Feraloy" Tip.

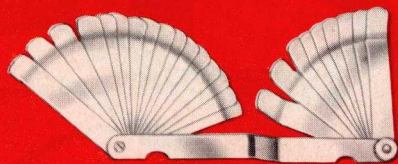
R250-21 Plastic Tile Cutting Tip.

R250-22 Flat Iron Tip.

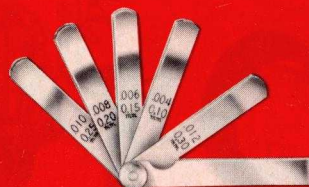
N R450 (25-450 Watt) Soldering Gun. Three heat ranges and automatic thermal regulation. Includes 200-450 watt tip, 100-200 watt tip, 25-120 watt tip, roll of rosin core solder and custom carrying case. Built in spotlight. 120 volts.

R450-4 Optional Flat Iron Accessory.

R450-5 Optional Plastic Cutting Tip.



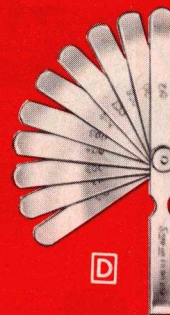
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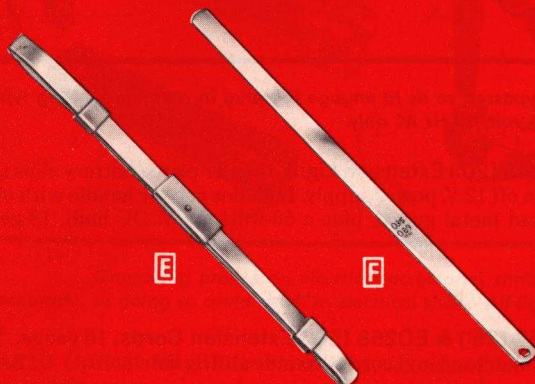
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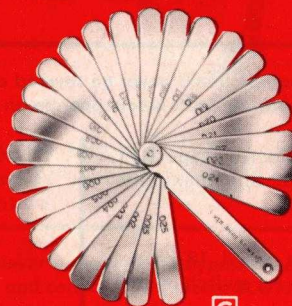


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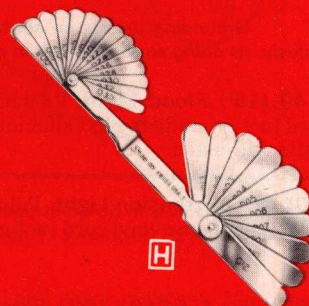


E

F



G



H

A **FB300A Bent Blade Feeler Gauge.** Includes 25 blades ($\frac{1}{2}$ " x $\frac{3}{4}$ ") with ends bent at 45° angle. Blade sizes: .006" through .030" (in .001" graduations).

C **FB305 Non-Magnetic Feeler Gauge.** Checks air gap in the distributor on 1973 and some previous model Chrysler cars. Includes 5 blades ($\frac{1}{2}$ " x $\frac{3}{16}$ "). Blade sizes: .004" through .012" (in .002" graduations).

C **FB308C Step Feeler Gauge Set.** Includes **FB308-1** Holder and set of 12 blades. Handle is bent to clear manifolds. Blades are inserted into handle and are locked in place over raised nub. For valve adjustment on Fords and trucks with Lincoln V-8's less hydraulic lifters. Blade sizes: .008"-.010", .011"-.013", .013"-.015", .014"-.016", .015"-.017", .017"-.019", .018"-.020", .020"-.022", .023"-.025", .025"-.027", .026"-.028" and .028"-.030"

D **FB310B Standard Feeler Gauge.** Includes 13 blades in sizes: .001", .0015", .002" through .008" (in .001" graduations), .010", .012", .013" and .015"

B **FB322 Step Feeler Gauge.** Similar in appearance to FB310B at lower left. Includes 22 "go-no go" blades in sizes: .004"-.006" through .025"-.027" (in .001" grad.).

G **FB316B Ignition and Spark Plug Gauge.** Includes 18 blades ($\frac{1}{4}$ " x $\frac{1}{4}$ ") in sizes: .010", .012", .013", .015" through .026" (in .001" graduations), plus .028", .030", .032" and .035"

E **FB312 Feeler Gauge Holder.** Holds two 12" blades. Blades extend 2" or farther and are held by sliding end clamps. Handy where valve specifications differ and as "go-no go" gauge.

F **12" Feeler Gauge Strips.** The following 34 sizes of feeler gauge stock are available in 12" strips for use in the FB312 Holder: .0015", .002", .0025", .003" through .030" (in .001" graduations), .032", .035" and .040". To order...stock number prefix is **FB6B** and the suffix is the feeler strip size. Example: Stock number for .0025" strip is **FB6B0025**.

D **FB325A General Use Feeler Gauge.** Includes 25 blades ($\frac{1}{2}$ " x 3") in sizes: .002" through .023" (in .001" graduations).

B **FB335 General Use Feeler Gauge.** Similar in appearance to FB325A above. Includes 35 blades ($\frac{1}{2}$ " x 3") in sizes: .0015", .002" through .035" (in .001" graduations). Swedish feeler blade steel, stainless steel handle.

H **FB326A Combination Feeler and Ignition Gauge.** Includes 10 blades ($\frac{1}{2}$ " x $2\frac{1}{2}$ ") in sizes: .003" through .008" (in .001" graduations), .010", .012", .013" and .015". Also includes 16 fingers ($\frac{1}{4}$ " x $\frac{1}{4}$ ") in sizes: .008", .010", .012", .013", .015", .017", .018", .020", .022", .024", .025", .026", .028", .030", .032" and .035"

B **FB327 Stainless Steel Feeler Gauge.** Similar in appearance to FB326A above. Includes 10 blades ($\frac{1}{2}$ " x 3") in sizes: .003" through .008" (in .001" graduations), .010", .012", .013" and .015". Also includes same 16 fingers ($\frac{1}{4}$ " x $\frac{1}{4}$ ") as FB326A above.

FEELER GAUGE DECIMAL/METRIC CONVERSION CHART

Decimal	Metric	Decimal	Metric	Decimal	Metric	Decimal	Metric
.001"	0.025 mm	.012"	0.305 mm	.024"	0.610 mm	.036"	0.914 mm
.0015"	0.037 mm	.013"	0.330 mm	.025"	0.635 mm	.038"	0.965 mm
.002"	0.051 mm	.014"	0.356 mm	.026"	0.660 mm	.040"	1.016 mm
.003"	0.076 mm	.015"	0.381 mm	.027"	0.686 mm	.042"	1.067 mm
.004"	0.102 mm	.016"	0.406 mm	.028"	0.712 mm	.044"	1.118 mm
.005"	0.127 mm	.017"	0.432 mm	.029"	0.737 mm	.046"	1.168 mm
.006"	0.150 mm	.018"	0.457 mm	.030"	0.762 mm	.052"	1.321 mm
.007"	0.178 mm	.019"	0.483 mm	.031"	0.787 mm	.054"	1.372 mm
.008"	0.203 mm	.020"	0.508 mm	.032"	0.813 mm	.056"	1.422 mm
.009"	0.229 mm	.021"	0.533 mm	.033"	0.838 mm	.060"	1.524 mm
.010"	0.254 mm	.022"	0.559 mm	.034"	0.864 mm	.080"	2.032 mm
.011"	0.279 mm	.023"	0.584 mm	.035"	0.889 mm		

†Double stamped with decimal and metric sizes. See chart above.

SPECIAL & METRIC FEELER GAUGES

Feeler/Spark Plug



A FB319 Feeler Gauge. For injector adjustments on diesel engines. Includes 19 blades ($\frac{1}{2}$ " x 12") in sizes .0025", .003" thru .020" (in .001" graduations).

FB519. Same design as FB319 above, except blades are 18" long.

B FBM322 Metric Feeler Gauge. Designed for use on 1973-75 Audi Fox, 1974-75 VW Dasher and 1975 VW Scirocco and Rabbit engines. Gauge handle is double ended and accepts two step blades ($\frac{1}{2}$ " x $3\frac{3}{8}$ ") in sizes: .020-.030 and .040-.050 mm. Overall length 10 $\frac{1}{4}$ " width $\frac{3}{4}$ ".

C Metric Feeler Gauge Strips. Designed for use with the FB312 Feeler Gauge Holder (page 178). Available in 12" strips, **FBM6-005** through **FBM6-100** in sizes 0.05 mm through 1.00 mm (in 0.05 mm graduations.) Width $\frac{1}{2}$ ". Made from fine Swedish Feeler Blade Steel.

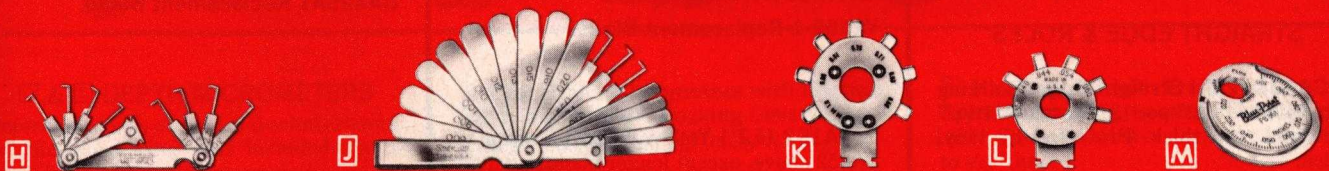
E FBM323 Metric Feeler Gauge Set. Includes 8 blades ($\frac{1}{4}$ " taper end x 4") in sizes: 0.025, 0.04, 0.05, 0.07, 0.10, 0.15, 0.20, 0.25 mm. Packaged in vinyl pouch.

F FBM324 Metric Feeler Gauge Set. Includes 8 blades ($\frac{1}{4}$ " x $1\frac{3}{4}$ ") in sizes: 0.25, 0.28, 0.30, 0.33, 0.36, 0.38, 0.41, and 0.43 mm. Packaged in vinyl pouch.

D FBM320 Metric Feeler Gauge Set. Includes 20 blades ($\frac{1}{2}$ " x 3") ranging in size from 0.05 to 1.00 mm (in 0.05 mm grad.).

G FBM321 Metric Feeler Gauge. Includes seven blades ($\frac{1}{2}$ " x 3") in sizes: .003 through .009 mm (in .001 mm grad.).

SPARK PLUG GAUGES & GAPPERS



H FB301 Automotive Wire Gap Gauge. Includes 8 wires in sizes .022", .025", .030", .032", .035", .038" and .040" and an electrode bender.

FB302 Aviation Wire Gap Gauge. Includes 8 wires in sizes: .010", .012", .015", .018", .020", .022", .025" and .030" and an electrode bender.

Federal Specification: GGG-G-17.

FB303 Wire Gap Gauge for High Energy Systems. Includes 6 wires in sizes: .035", .040", .044", .054", .060" and .080" and an electrode bender.

J FB359 Ford Feeler Gauge. Includes 4 spark plug bent wire feelers in sizes: .023", .028", .030" and .035"; 2 straight wire feelers in sizes: .017" and .030"; 5 ignition feelers in sizes: .013", .015", .016", .020" and .025"; 14 step ground blades in sizes .010"-.013" through .019"-.021" (in .001" graduations), .021"-.023", .024"-.026", .025"-.027", and also includes an electrode bender.

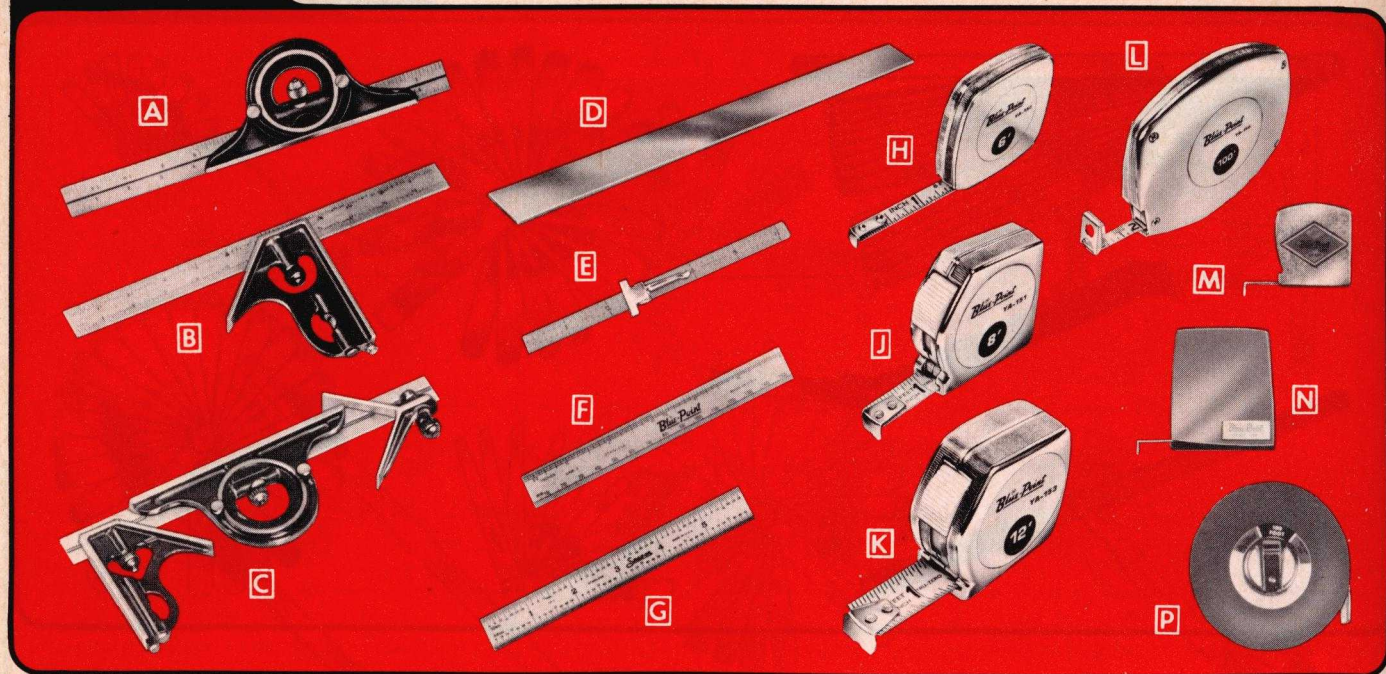
FB379 Chevrolet Feeler Gauge. Includes 9 blades ($\frac{1}{2}$ " x 3") in sizes: .006", .007", .008", .010", .012", .013", .015", .016" and .020"; five fingers ($\frac{1}{4}$ " x $2\frac{1}{2}$ ") in sizes: .016", .018", .019", .020" and .022"; and three wire gap gauges in sizes: .032", .035" and .040" plus electrode bender.

K GA461A Spark Plug Gauge. Includes 7 wires protruding $\frac{1}{4}$ " from edge of plastic disc. Wire sizes: .020", .025", .028", .030", .032", .035" and .040".

L FB360 Spark Plug Gap Gauge. Includes six wire sizes: .035", .040", .044", .054", .060" and .080".

M FB361 Spark Plug Gapper Gauge. Pocket size spark plug gapper features an inclined ramp for setting gap. Diameter $1\frac{1}{2}$ ". Range .020" to .100" (0.55 mm to 2.475 mm).

†Double stamped with decimal and metric sizes. See chart on page 178.



LEVELS & SQUARES

A GA282A (12") Protractor-Level. Revolving turret protractor graduated to 90° on either side of 0. Bubble level is replaceable. Turret base measures 7" x 3/4". Sliding rule is graduated in 8ths, 16ths, 32nds and 64ths.

B CM3120 (12") Machinists' Square. Features head for 45° and 90° use and includes level bulb. Graduated in 8ths, 16ths, 32nds and 64ths.

C CM3123 (12") Combination Square-Protractor-Level. Protractor-level graduated to 180° on either side. Features two slides, one for 45° and 90°, the other for 45°. Sliding rule graduated in 8ths, 16ths, 32nds and 64ths.

STRAIGHT EDGE & RULES

D GA438 (18") Straight Edge. Working edge held to .0002" per 12". Measures 1 13/32" wide and 3/16" thick. Protected by vinyl pouch.

E CM3070 (6") Pocket Rule. Calibrated in 32nds and 64ths and has decimal equivalents etched on back. Includes handy pocket clip.

F GAM2 (6") U. S./Metric Rule. U. S. edge in 1/32" increments for first 3" 1/16" for last 3". Metric edge is 152 mm in 1 mm increments. Decimal equivalents etched on back. Rigid.

YA120 (12") U. S./Metric Rule. Similar to GAM2, but longer and flexible. 1" wide. No equivalent chart on back.

G GA2A (6") Steel Rule. Graduated in 32nds on one edge, 64ths on the other. 3/4" wide. Decimal equivalent chart on back.

H YA150 (6') Yellow Tape. Steel blade graduated in 16ths (32nds for first 6") and is 1/4" wide. chrome case is 1 3/4" square by 3/8".

YA150-1 Replacement Blade.

J YA151 (8') Yellow Tape. Steel blade is graduated same as YA150 above. Features tape locking device and belt clip. Chrome case is 2 1/4" x 2 1/8" x 1 1/16". Blade is 1/2" wide.

YA151-1 Replacement Blade.

YA152 (10') Yellow Tape. Identical to YA151 above, except longer.

YA152-1 Replacement Blade.

K YA153 (12') Yellow Tape. Identical to YA152 above, except longer blade and 2 1/4" x 2 7/8" x 1 1/16" case. 3/4" wide blade.

YA153-1 Replacement Blade.

YA154 (16') Yellow Tape. Similar to YA153 above, except tape is longer and dual dimensioned in inch sizes and millimetres. Case is 2 1/2" square.

YA154-1 Replacement Blade.

YA155 (25') Yellow Tape. Similar to YA153 above, except tape is longer and 1" wide. Case is molded of unbreakable plastic and chrome plated. Case is 3 1/8" square.

YA155-1 Replacement Blade.

TAPES

L YA156 (100') Yellow Tape. Hand crank rewind folds into case. Graduations on steel blade are in 8ths; stud markings are located every 16"; and there are foot markings also. Case measures 5" x 4 1/2" x 1". Blade is 3/8" wide.

YA156-1 Replacement Blade.

M GA425A (6'7"/200 cm) Yellow Tape. Has U. S. scale in 16ths (first 6" in 32nds); metric in centimetres and millimetres. Plastic case is 1 7/8" square. 1/4" wide blade.

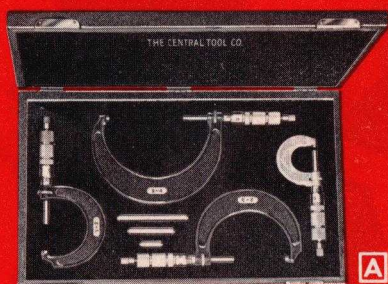
GA425A1 Replacement Blade.

N GA427 (10'/300 cm) Yellow Tape. U. S. side graduated in 16ths (first 1" in 32nds); metric side in centimetres and millimetres. Has centrifugal brake. Case is 2 7/16" x 2 1/2" with belt clip. 1/2" wide blade.

GA427-1 Replacement Blade.

P GA429 (100') Yellow Tape. Graduated in 16ths (plus 16" stud markings). Hand crank winding mechanism. Leatherette case 4 1/2" in diameter.

GA429-1 Replacement Blade.



A



B



C

MICROMETER FEATURES

- Highly accurate for close tolerance work. • Spindles are lapped and fitted into each micrometer for positive, uniform movement assuring accurate parallelism and squareness. • Spindle lock maintains a fixed setting. • Friction stop provides uniform pressure for variation in the "touch" of the user. • Models available for both inside, outside and depth measurement.

MICROMETER SETS

Micrometer is equipped with a friction stop and spindle locking lever and is graduated in .001"

A CM45RL. Contains 0"-1", 1"-2", 2"-3", and 3"-4" range micrometers with three standard test gauges.

CM60RL (not shown). Contains 0"-1", 1"-2", 2"-3", 3"-4", 4"-5" and 5"-6" range micrometers with five standard test gauges.

INSIDE MICROMETER SETS

B ROD DESIGN

Micrometers have .001" graduations and feature satin chrome finishes. Measuring rods, spacing collars and extension handle are included.

CM85. 2"-8" range. Includes four measuring rods.

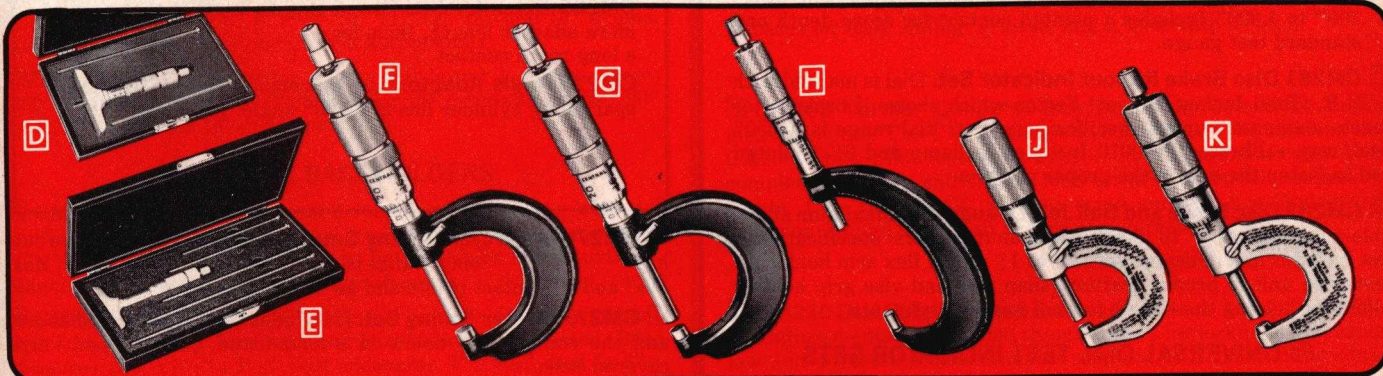
CM86. 2"-12½" range. Includes seven measuring rods.

C TUBULAR DESIGN

For measuring cylinder bores, brake drums, large bushings plus other items where inside measurement is required. Micrometers are graduated in .001" Auxiliary extension handle included.

CM80. 1½"-8" range.

CM81. 1½"-12" range.



D & E DEPTH MICROMETERS

Determine depth of slots and counterbores. ⅛" dia. measuring rods included. Graduated in .001" Friction stops.

Model No.	Range	Base	Rods
D CM103	0"-3"	7/16" x 2½"	3
D CM143	0"-3"	7/16" x 4"	3
E CM106	0"-6"	7/16" x 2½"	6
E CM146	0"-6"	7/16" x 4"	6

F Micrometers with Friction Stops and Spindle Locking Levers. Graduated in .001" Satin chrome and baked enamel finish.

Model No.	Range	Model No.	Range
CM12RL	0"-1"	CM42RL	3"-4"
CM22RL	1"-2"	CM52RL	4"-5"
CM32RL	2"-3"	CM62RL	5"-6"
CM25RL with ball anvil for curved surfaces, 0"-1" range.			

G Disc Brake Micrometers with Friction Stops and Spindle Locking Levers.

CM29L. .003"-1.300" in .0005" grad.

CM28LC. ½"-1½" in .001" grad.

H Connecting Rod Journal Micrometers with Friction Stops and Spindle Locking Levers.

CM50LC. 1½"-2½" in .001" grad. 2" test gauge included.

CM53LC. 2½"-3½" in .001" grad. 3" test gauge included.

J Micrometer with Friction Thimbles and Spindle Locking Levers. Graduated in .001" Stamped table of decimal equivalents to 1/64ths.

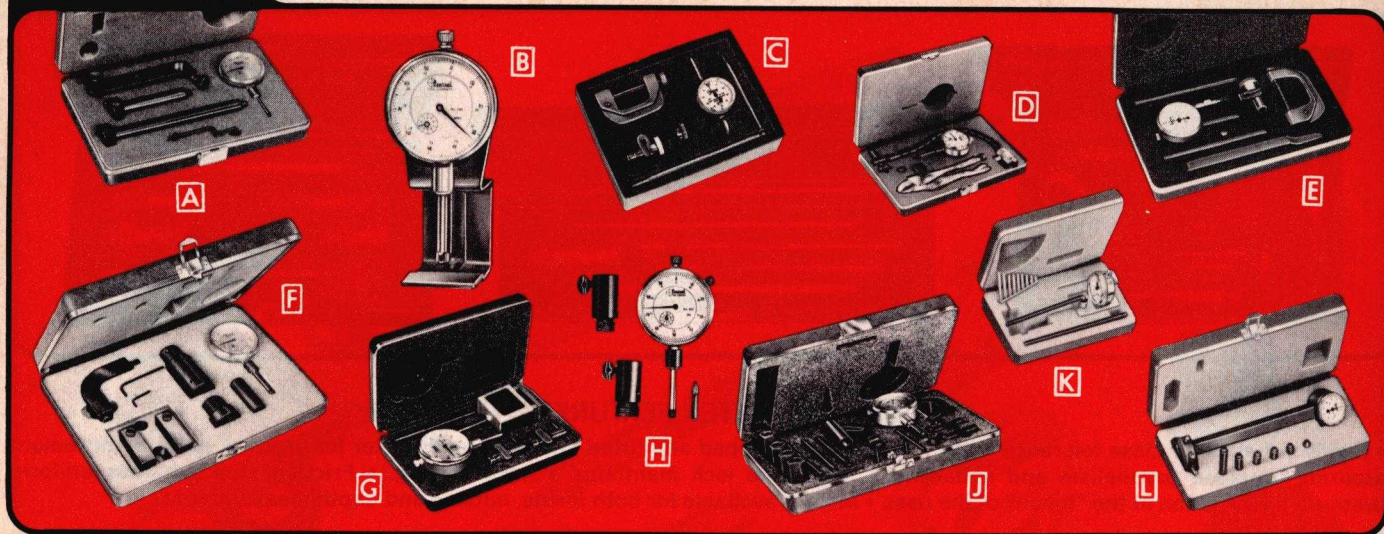
CM71L. 0"-1" range.

K Micrometers with Friction Stops and Spindle Locking Levers. Graduated in .001" Stamped table of decimal equivalents to 1/64ths.

CM11RL. 0"-1" range.

CM15RL. Has ball anvil for curved surfaces 0"-1" range.

All products on pages 181, 182 and 183 are also available with metric graduations except CM214, CM29L and CM280. Add the suffix "M" to the regular stock number. For example, the metric version of CM29L is CM29LM.



All products on pages 181, 182 and 183 are also available with metric graduations except CM214, CM29L and CM280. Add the suffix "M" to the regular stock number when ordering.

GAUGE SET

[A] CM279. Full range of 0 to 1" for setting Cummins injectors. Attachments position the indicator and include 7½" post, 4" post, hinged support arm and offset contact point. Plunger travel is in .001" increments.

DISC BRAKE GAUGES

[B] CM280 Disc Brake Rotor Thickness Gauge. Operating range is .300" to 1.300". Includes a pointed contact for score depth and 1" standard test gauge.

[C] CM281 Disc Brake Runout Indicator Set. Dial is marked with a T.I.R. (Total Inches Runout) Sector which shows if brake rotor meets maximum runout specifications. 1½" dial range is 0-.050" each way, calibrated in .001". Includes C-Clamp and 8¾" jointed rod to fasten the unit in the proper position.

[D] CM282 Disc Brake and Ball Joint Gauge Set. Maximum allowable runout is .002" to .005" (see manufacturers' specifications). Set includes dial indicator with 0" to 1" range, flex arm holder for fastening unit in proper position, snap ring and vise grip holding pliers for holding the tie rod for ball joint adjustments.

[E] UNIVERSAL DIAL TEST INDICATOR SETS

CM200. 0-100 range. Determine lash in differential ring and pinion gears, steering gears; measure runout of flywheels on torque converters, wear or end play; bushing or bearing wear; check crankshaft thrust bearing wear. Set includes a dial indicator, spindle safety collar, 12" x 5/16" sectional rod, hole attachment and cap, tool post holder and universal rod connector. .001" increments.

CM201. Same as CM200 above except range is 0-50-0.

OPTIONAL ACCESSORIES

CM4210 (1") Contact Point. CM4211 (1½") Contact Point.

VALVE STEM HEIGHT AND SPECIFICATION MASTER SET

[F] CM290. Two-gauge measuring system will give correct stem heights for valves in any engine (a spec. not published in service manuals) and lets you check results after reground valves are back in engine head.

DIAL TEST INDICATOR SET

[G] CM260. Checks ball joint, tie rod, cam and valve guide wear and wheel rim, flywheel and disc brake runout. Dial has 1" range with .001" graduations. Has revolution counter.

TIMING GAUGES

[H] CM263. Use where timing must be set to an exact measurement in thousandths of an inch before top dead center. Dial is in .001" graduations and can be rotated and locked for zero setting. Gauge has automatic revolution counter and lugged back. Includes 14 and 18 mm adaptors and a long reach contact.

OPTIONAL ACCESSORIES for CM263

CM265 Extender Kit. Use on 2-cycle engines that require more adaptor length. Includes 14 and 18 mm adaptors plus a long reach contact.

CM276 Angle Adaptor. Use on small engines in which the spark plug cylinder lies at 40-60° angle. Includes 14 and 18 mm adaptors.

CM4225 12 mm Timing Adaptor. For snowmobiles, motorcycles, plus some models of Porsche and Honda cars.

[I] CM278 Motorcycle Timing Gauge. Similar to CM263 above but has 14 mm adaptor only. Range is 0-5 mm in .01 mm increments. Has 1½" and 2" contact points and an "O" ring.

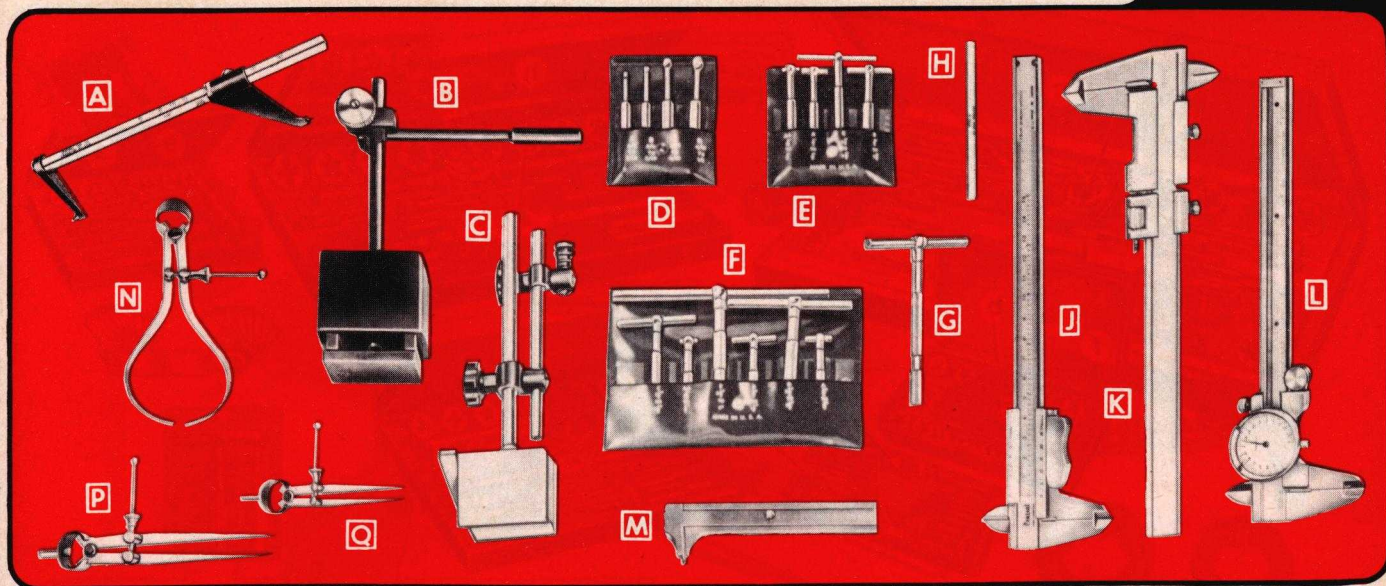
[J] CM277 Master Timing Set. It includes CM263 described above and the components below in a form-fitted, plastic lined vinyl covered case.

Stock No.	Description	Stock No.	Description
CM4203	Sectional Rod	CM4214	Contact Point Extender
CM4205	Clamp	CM4295	Plunger Extender
CM4209	Diameter Rod	CM4296	Stud
CM4216	Contact Point	CM4297	Thumb Screw
CM4217	Rod Connector	CM4298	Angle Compensating Arm
CM4218	Swivel Clamp	CM4299	Indicator Lock Screw
CM4341	Indicator	CM4300	14 mm Adaptor
CM4222	2" Contact Point	CM4301	18 mm Adaptor
CM4223	14 mm Extender	CM4302	Set Screw
CM4224	18 mm Extender	CM4303	Hex Screw (3/32")
CM4213	Roller Contact	CM4304	Adaptor Screw

CYLINDER BORE GAUGES

[K] CM258. This cylinder bore gauge comes complete with handle and nine contact extensions for various applications. It will quickly determine cylinder taper and out-of-roundness. It has a range of 2.125" to 7.00" in .0005" increments. The gauge has a U. S. Reading Indicator and comes in a fitted steel case.

[L] CM257. The CM257 Cylinder Bore Gauge measures taper from the immediate underside of ridge to the bottom of the critical wear area without the necessity of removing the pistons. It has a range of 2.6" to 7" and measures to a bore depth of 8". It has graduations of .001" and features rigid one-piece construction.



All products on pages 181, 182 and 183 are also available with metric graduations except CM214, CM29L and CM280. Add the suffix "M" to the regular stock number when ordering.

A BRAKE DRUM WEAR LIMIT GAUGES

These gauges measure scored brake drums to determine if they can be safely machined.

CM214. 8"-14" range for passenger cars, light trucks and buses. Shows .060" limit for 8", 9", 9½", 10", 11", 12", 13" and 14" drums. Also includes .120" limit for Lincoln automobiles.

CM216. 14"-16½" range for trucks and larger vehicles. Shows .060" limit for 14" drums, .120" limit for 15" drums and both .120" and .180" limits for 16½" drums.

MAGNETIC BASE HOLDERS

CM231. Includes a universal 2-diameter rod (4" long with ¼" and ⅝" diameters), universal rod connector and brass center post (4" x ⅝"). Base (2" x 1¼" x 2") grips flat or curved metal surfaces. Magnets are beveled for more gripping power.

CM233. Will grip flat or curved metal surfaces. Features magnet with "on-off" switch. Use with any Dial Indicator Set listed. Base measures 2⅝" x 1⅞" x 2½". Post measures 7" x ⅝". Rod is 6" x ⅝".

SMALL HOLE GAUGE SET

CM230. Accurate measurements of small holes. Includes 4 gauges ranging ⅛" to ½". Packed in a plastic pouch with imprinted sizes. Ideal for checking valve guide wear.

TELESCOPING GAUGES

CM222 Set. Permits accurate measurement of slots and small cylinders. Set contains 4 gauges with a range of ⅝" to 2⅞", packed in a plastic pouch with imprinted sizes.

CM224 Set. Larger version of CM222 above. Includes 6 gauges ranging from ⅝" to 6".

CM4352. Single gauge for measuring slots and cylinders. Range is 1¼" to 2⅞".

CM4353. Single gauge is identical to CM4352 above, but it has a larger range of 2⅞" to 3½".

H STANDARD TEST GAUGES

CM401 for 1" to 2" range units.

CM402 for 2" to 3" range units.

CM403 for 3" to 4" range units.

CM404 for 4" to 5" range units.

CM405 for 5" to 6" range units.

CALIPERS

CM206 Vernier Calipers. Handles inside, outside or depth measurements. Includes both U. S. and metric graduations (0"-6" and 0-150 mm). U. S. increments are .001"; metric increments are .02 mm. Calipers features a thumb lock slide. Press, and it releases for easy sliding; release, and it locks into position.

CM208 Vernier Calipers. Handles inside, outside or depth measurements. The CM208 Calipers is calibrated the same as the CM206 above. Slide features a knurled fine adjustment control for complete accuracy and thumb lock screws for non-slip measurements. Like the CM206, its measuring surfaces are lapped and precision ground for a high degree of accuracy.

CM210 Dial Calipers. Features knurled thumb wheel for making fine adjustments and knurled thumb screws for locking its movable jaw and adjustable dial. Calipers range is 0"-6" in .001" graduations. Readings are obtained by adding the readings on the frame to the dial scale readings on the movable jaw.

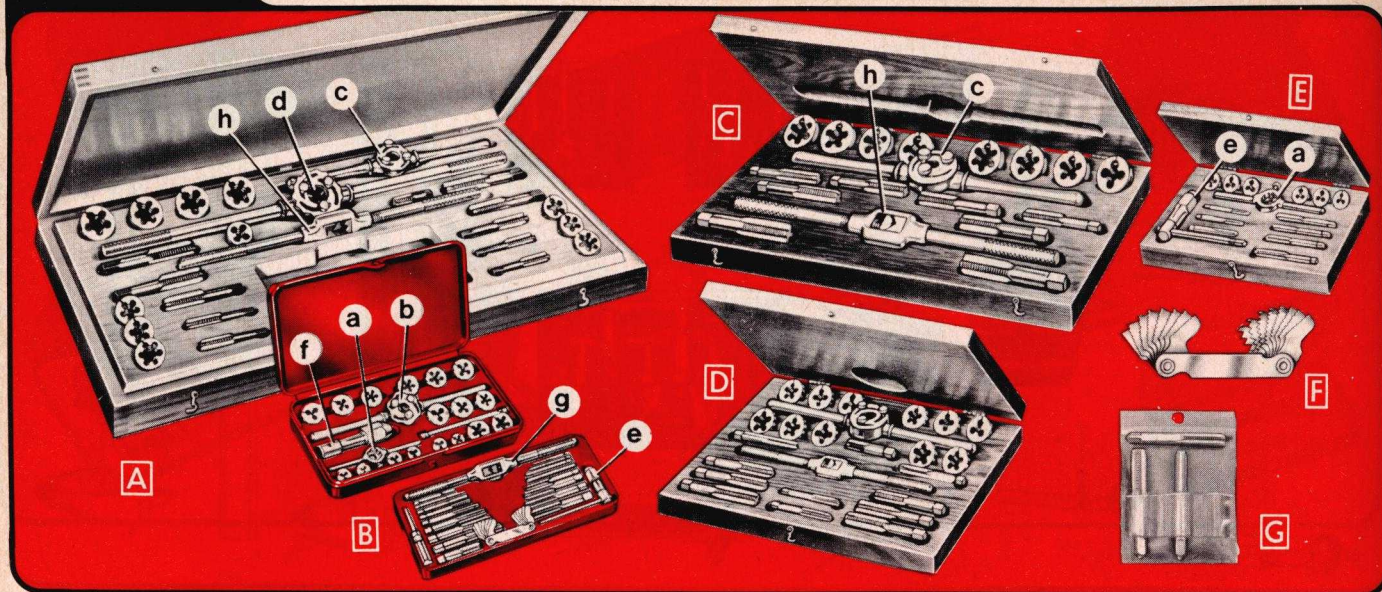
CM205 Slide Rule Calipers. Includes both U. S. and metric graduations (0"-4" and 0-100 mm). U. S. increments are ⅛"; metric increments are 10 mm. Can be used for inside or outside measurements.

CM3316 Machinists' Spring Calipers. Specially designed for measuring diameter of cylinders, etc. Calipers is fully hardened and heat treated and features a knurled thumb nut to open and close the legs. Measurement must be attained by using calipers with a stainless steel rule.

MACHINISTS' DIVIDERS

CM3306. This spring-type divider features a knurled adjustment nut to open and close the legs. It is fully hardened and heat treated and has a brushed finish. Its overall length is 6".

CM3304. Has same construction and features as CM3306 above, it is 4" long overall.



An important feature of SNAP-ON dies is a small adjusting screw which changes the nominal size from .001" to .003" under or over to give a tight or loose fit to your thread. Dies 1/4" to 1/2" are one-piece, 12 point hex, that can be turned with a 1" socket wrench where

regular die stocks cannot be used. The three largest die stocks are self-centering and adjust to the diameter of the rod or bolt. Fed. Spec. GGG-T-60 apply to dies 1/2" thru 1" and to taps 5/16" thru 1"

A & B TD9902 Complete Set. Includes all taps and dies listed at bottom of page. Also includes TD4, 50, 88 and 98A Tap Wrenches and TD3, 10, 35 and 40 Die Stocks below. The TD1040 Screw Pitch Gauge and TDS1 Screwdriver are also part of the set. Machine screw sizes and N.C. and N.F. sizes up to 1/2" are contained in the TD2425-1 Plastic Case and tray, while all other tools come in the TD9902-1 Wood Case.

B TD2425 Deluxe Set. Includes all machine screw sizes below plus N.C. and N.F. sizes 1/4" thru 1/2" and a 1/8" Pipe Thread. Also includes TD3 and 10 Die Stocks; TD4, 50 and 88 Tap Wrenches; TD1040 Screw Pitch Gauge and TDS1 Screwdriver...in TD2425-1 Plastic Case.

C TD7800 Intermediate Set. For N.C. and N.F. thread sizes 1/2" thru 3/4". The TD35 Self-centering Die Stock and TD98A Tap Wrench are also included...in TD7800-1 Wood Case.

D TD2400A Standard Set. For N.C. and N.F. thread sizes 1/4" thru 1/2". The 1/8" Pipe Thread plus the TD88 Tap Wrench and TD10 Self-centering Die Stock are also included...in TD2400A1 Wood Case.

E TD2500 Machine Screw Set. Includes all machine screw sizes below, TD4 Tap Wrench and TD3 Die Stock...in TD2500-1 Wood Case.

F TD1040 Screw Pitch Gauge. Measures from 8-44 threads per inch. Has eighteen leaves.

DIE STOCKS AND TAP WRENCHES

- a. **TD3** Die Stock... For hexagon dies 4-36 to 12-24
- b. **TD10** Die Stock... Self-centering for 1" diameter hex dies
- c. **TD35** Die Stock... Self-centering for 1 1/2" diameter round dies
- d. **TD40** Die Stock... Self-centering for 2" diameter round dies
- e. **TD4** Tap Wrench... 4-jaw chuck for 6-32 to 10-32 taps
- f. **TD50** Tap Wrench... 4-jaw chuck, for 1/4" to 1/2" taps
- g. **TD88** Tap Wrench... Clamp-type, for 1/8" to 1/2" taps
- h. **TD98A** Tap Wrench... Adjustable clamp-type, for 1/2" to 1" taps

ADDITIONAL TAP WRENCHES AVAILABLE

- TD6** Tap Wrench... 2-jaw chuck, for 1/16" to 1/4" taps
- TD7** Tap Wrench... 2-jaw chuck, for 1/4" to 1/2" taps
- TD8** Tap Wrench... 4-jaw chuck, for 7/32" to 5/16" taps

BOTTOMING TAP SETS

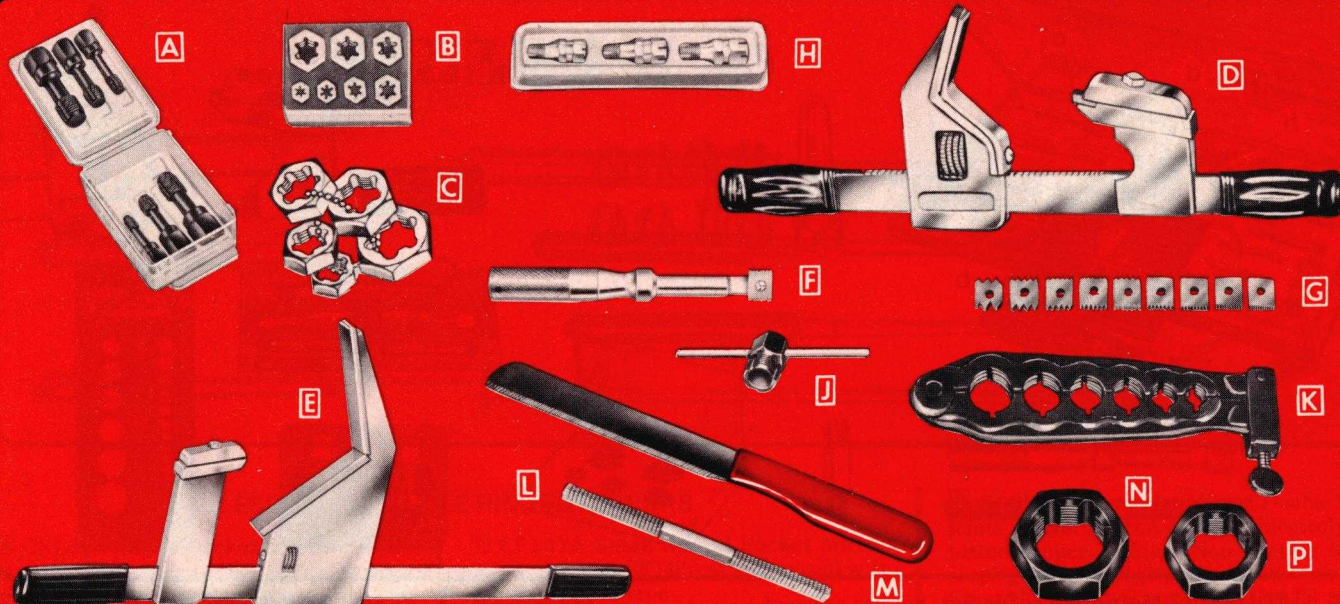
TB300C. This set features three bottoming taps with National Coarse threads. Each tap allows a blind hole to be tapped within one thread of the bottom of the hole.

TB300F. This set is identical to the TB300C above, except its three taps feature National Fine threads.

TB300C Taps		TB300F Taps	
Stock No.	Size	Stock No.	Size
TB5/16C	5/16-18NC	TB5/16F	5/16-24NF
TB3/8C	3/8-16NC	TB3/8F	3/8-24NF
TB7/16C	7/16-14NC	TB7/16F	7/16-20NF

PLUG-TYPE TAPS AND DIES

National Fine Sizes				National Coarse Sizes				Machine Screw Sizes			
Thread Size	TAPS		DIES	Thread Size	TAPS		DIES	Thread Size	TAPS		DIES
	Stock No.	Stock No.			Stock No.	Stock No.			Stock No.	Stock No.	
1/4" -28	T105	D015	1" Hexagon	1/4" -20	T100	D010	1" Hexagon	4-40	T111A	D021A	5/8" Hexagon
5/16" -24	T106	D016	1" Hexagon	5/16" -18	T101	D011	1" Hexagon	6-32	T112	D022	5/8" Hexagon
3/8" -24	T107	D017	1" Hexagon	3/8" -16	T102	D012	1" Hexagon	8-32	T113	D023	5/8" Hexagon
7/16" -20	T108	D018	1" Hexagon	7/16" -14	T103	D013	1" Hexagon	10-24	T114	D024	5/8" Hexagon
1/2" -20	T109	D019	1" Hexagon	1/2" -13	T104	D014	1" Hexagon	10-32	T115	D025	5/8" Hexagon
1/2" -20	...	DR019	1 1/2" Round	1/2" -13	...	DR014	1 1/2" Round	12-24	T116	D026	5/8" Hexagon
9/16" -18	T125	DR035	1 1/2" Round	9/16" -12	T120	DR030	1 1/2" Round	Pipe Sizes			
5/8" -18	T126	DR036	1 1/2" Round	5/8" -11	T121	DR031	1 1/2" Round				
3/4" -16	T127	DR037	1 1/2" Round	3/4" -10	T122	DR032	1 1/2" Round				
7/8" -14	T128	DR042	2" Round	7/8" -9	T123	DR040	2" Round				
1" -14	T129	DR043	2" Round	1" -8	T124	DR041	2" Round	1/8"	T110	D020	1" Hexagon
								1/4"	T130	D040	1" Hexagon
								1/4"		DR033	1 1/2" Round



A RETHREADING TAP SETS

Renew tapped threads after removing broken studs or nuts. Use any wrench and oil. Not for hardened threads.

TRT6C National Coarse Set. Copper finish.

TRT6F National Fine Set. Black finish.

TRT6C Set	TRT6F Set
TRT2520 1/4"-20 NC	TRT2528 1/4"-28 NF
TRT3118 5/16"-18 NC	TRT3124 5/16"-24 NF
TRT3716 3/8"-16 NC	TRT3724 3/8"-24 NF
TRT4314 7/16"-14 NC	TRT4320 7/16"-20 NF
TRT5013 1/2"-13 NC	TRT5020 1/2"-20 NF
TRT5612 9/16"-12 NC	TRT5618 9/16"-18 NF

RETHREADING DIE SETS

B For 1/4" to 5/8" Bolts. Removes nicks and burrs. For chasing work only; not for cutting new threads.

TRC7A National Coarse Set. Copper finish.

TRF7A National Fine Set. Natural finish.

TRC7A Set	TRF7A Set
TR2520 1/4"-20 NC	TR2528 1/4"-28 NF
TR3118 5/16"-18 NC	TR3124 5/16"-24 NF
TR3716 3/8"-16 NC	TR3724 3/8"-24 NF
TR4314 7/16"-14 NC	TR4320 7/16"-20 NF
TR5013 1/2"-13 NC	TR5020 1/2"-20 NF
TR5612 9/16"-12 NC	TR5618 9/16"-18 NF
TR6211 5/8"-11 NC	TR6218 5/8"-18 NF

C 3/4" to 1 1/4" Bolts. Flexible chain keeps dies together.

TRC5 National Coarse Set. Copper finish.

TRF5 National Fine Set. Natural finish.

TRC5 Set	TRF5 Set
TR7510 3/4"-10 NC	TR7516 3/4"-16 NF
TR8759 7/8"- 9 NC	TR8714 7/8"-14 NF
TR10008 1"- 8 NC	TR10014 1"-14 NF
TR11257 1 1/8"- 7 NC	TR11212 1 1/8"-12 NF
TR12507 1 1/4"- 7 NC	TR12512 1 1/4"-12 NF

THREAD CHASER SETS

D TR20C External Set. Rethreading tool has 1/2" to 5 3/4" diameter capacity for bolt threads and 1/4" to 4" for pipe threads. Includes 9 chasers listed below. Ring holds chasers. Chaser holding bracket allows threads to be recut to beveled edge or square shoulder. Adjustable jaw has replaceable brass liner.

E TR21A External Set. Same design as TR20C above, except it includes a rethreading tool with 5" to 14" diameter capacity for pipe threads. Includes the 9 chasers listed below.

F TR25B Internal Set. Includes plated steel internal chaser tool with knurled handle and the 9 chasers listed below.

G CHASERS for ABOVE SETS

Stock No.	Thread Pitch	Stock No.	Thread Pitch
TR20-10	4 & 5	TR20-14	11 1/2 & 12
TR20-11	6 & 7	TR20-15	13 & 14
TR20-12	8 & 9	TR20-16	16 & 18
TR20-32	8 & 10	TR20-17	20 & 24
TR20-13	10 & 11		

TR20-19 Optional Chaser. 4 1/2 and 7 1/2 threads. 7 1/2" side for fire hose fittings.

H TDC3 Inverted Fitting Set. Retaps and rethreads tube fittings of inverted flare type. Three sizes below fit most hydraulic brake lines and some gas and oil lines. Includes the following 3 sizes:

CHASERS FOR TDC3 Set

TDC1224	1/8"-24 Chaser
TDC1424	7/16"-24 Chaser
TDC1620	1/2"-20 Chaser

I THREAD CHASER

GA412. For GM air conditioners. Cleans and restores threads on hub and shoe assemblies directly on air conditioner unit... no puller is necessary.

Metric taps & dies on page 186.

K AXLE RETHREADER

AR6B. Cleans and restores battered axle threads. Features 6 popular thread sizes: 3/4"-16, 3/4"-20, 7/8"-14, 1"-14, 1 1/8"-12 and 1 1/4"-12. Tool is placed around axle where thread is still good. End clamp holds two pieces in place. Black oxide finish.

L THREAD RESTORERS

Just a few strokes across battered threads restore them. Each tool features 8 thread sizes.

TF1124A. 11, 12, 13, 14, 16, 18, 20 and 24 threads per inch.

TF1127A. 9, 10, 12, 16, 20, 27, 28 and 32 threads per inch.

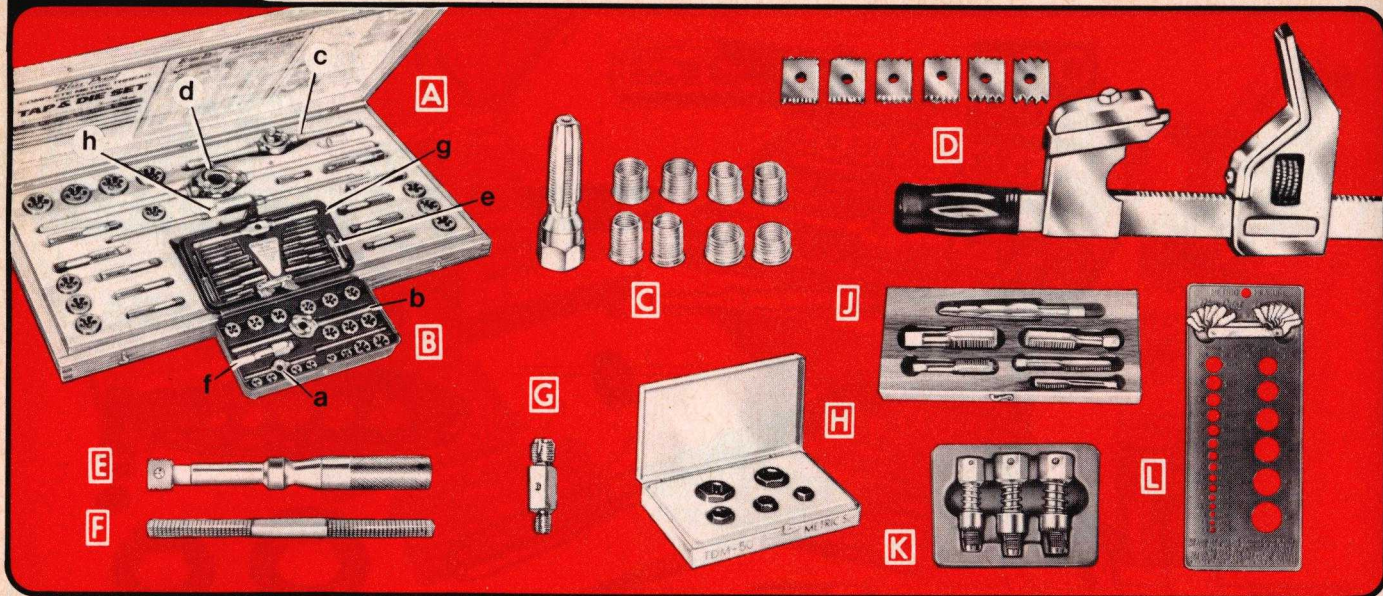
M THREAD FILE

GA313. Blade edge file restores damaged threads of all sizes and types: USS (NC), SAE (NF), metric, etc. Blade is 5" long and about 1/8" thick. Has red plastic covered handle for comfortable grip.

SPINDLE RETHREADING DIES

N TR8120 13/16"-20 NF. For dressing front spindles on newer cars. Hex shape fits 1 1/8" wrench.

P TR7520 3/4"-20. Designed for front spindles on GM cars.



A & B TDM99117 Metric Tap & Die Set. Set has range of **3 mm to 24 mm** and includes all Die Stocks and Tap Wrenches listed below, **TDM100 Metric Thread Pitch Gauge**, Taps and Dies listed below and a can of Thread Cutting Fluid. Packaged in sturdy wooden case.

DIE STOCKS and TAP WRENCHES for TDM99117 SET

a. TD3	Die Stock	For hex dies 3-0.60 mm to 6-1.00 mm
b. TD10	Die Stock	Self-centering for hex dies 7-1.00 mm to 12-1.75 mm
c. TD35	Die Stock	Self-centering for round dies 14-1.25 mm to 18-2.50 mm
d. TD40	Die Stock	Self-centering round dies 20-2.50 mm to 24-3.00 mm
e. TD4	Tap Wrench	4-jaw chuck, for taps 3-0.60 mm to 6-1.00 mm
f. TD50	Tap Wrench	4-jaw chuck, for taps 7-1.00 mm to 12-1.75 mm
g. TD88	Tap Wrench	Adjustable clamp-type, for taps 3-0.60 mm to 12-1.75 mm
h. TD98A	Tap Wrench	Adjustable clamp-type, for taps 7-1.00 mm to 24-3.00 mm

TAPS and DIES for TDM99117 SET

Stock Number		Size in mm	Die Hex	Stock Number		Size in mm	Die Hex
Plug Taps	Hex Dies			Plug Taps	Hex Dies		
•T306M	•D306M	3-0.60	5/8"	T910M	D910M	9-1.00	1"
•T407M	•D407MA	4-0.70	5/8"	T912M	D912M	9-1.25	1"
•T4075M	•D4075M	4-0.75	5/8"	T1012M	D1012M	10-1.25	1"
•T508M	•D508MA	5-0.80	5/8"	T1015M	D1015M	10-1.50	1"
•T509M	•D509M	5-0.90	5/8"	T1115MA	D1115M	11-1.50	1"
•T610M	•D610MA	6-1.00	5/8"	T1212M	D1212M	12-1.25	1"
•T710M	•D710M	7-1.00	1"	T1215M	D1215M	12-1.50	1"
•T810M	•D810M	8-1.00	1"	T1217M	D1217M	12-1.75	1"
•T812M	•D812M	8-1.25	1"				
Plug Taps	Round Dies	O.D.		Plug Taps	Round Dies	O.D.	
T1412M	DR1412M			T1825M	DR1825M		
T1415M	DR1415M	14-1.50	1 1/2"	T2025M	DR2025M	20-2.50	2"
T1420M	DR1420M	14-2.00	1 1/2"	T2215M	DR2215M	22-1.50	2"
T1615M	DR1615M	16-1.50	1 1/2"	T2420M	DR2420M	24-2.00	2"
T1620M	DR1620M	16-2.00	1 1/2"	T2430M	DR2430M	24-3.00	2"
T1815M	DR1815M	18-1.50	1 1/2"				

B TDM117 Metric Tap & Die Set. Includes TD3 and TD10 Die Stocks, TD4, TD50 and TD88 Tap Wrenches, TDM100 Thread Gauge, TDS1 Screwdriver and 18 taps and dies shown above with (•).

OPTIONAL TAPS & HEX DIES

Stock Number			Size in mm	Die Hex	Stock Number		Size in mm	Die Hex
Plug Taps	RH Dies	LH Dies			RH Dies	LH Dies		
T6310M T1412M T1415M T1420M	D147M		4-0.70	1"	D1620M		16-2.00	1 1/4"
	D158M		5-0.80	1"	D1810M	D1810ML	18-1.00	1 7/16"
	D161M		6-1.00	1"	D1815M	D1815ML	18-1.50	1 7/16"
			6.33-1.00		D1825M		18-2.50	1 7/16"
	D1412M		14-1.25	1 1/16"	D2025M		20-2.50	1 7/16"
	D1415M		14-1.50	1 1/16"	D2215M	D2215ML	22-1.50	1 5/8"
	D1420M		14-2.00	1 1/16"	D2415M		24-1.50	1 13/16"
	D1615M	D1615ML	16-1.50	1 1/4"	D3015M		30-1.50	2"

C Rethreader Kits for Spark Plug Holes.

Each kit includes a combination tap and reamer plus assorted inserts to fit the appropriate spark plug hole in most cars, motorcycles and snowmobiles. Once tightened, inserts remain in cylinder.

Size	Set No.	Tap & Reamer	3/8" Long Insert (2)	7/16" Long Insert (2)	1/2" Long Insert (2)	11/16" Long Insert (2)	3/4" Long Insert (2)
14 mm	YA440	YA440-1	YA440-2	YA440-3	YA440-4		
10 mm	YA445	YA445-1	YA445-2				
12 mm	YA446	YA446-1	YA446-2			YA446-3	YA445-5

D TR20M External Chaser Set. 1/2" to 5/4" diameter capacity for bolt threads and 1/4" to 4" for pipe threads. Includes Chaser Tools and 6 chasers with two sizes each from .75 to 5 mm pitch. Adjustable jaw has replaceable Brass Liner.

STOCK NUMBER & THREAD PITCH

TR20-30	.75/1 mm	TR20-27	2.5/3 mm
TR20-29	1.25/1.5 mm	TR20-26	3.5/4 mm
TR20-28	1.75/2 mm	TR20-25	4.5/5 mm
TR20-31M Set. Six chasers above on ring.			

TR21M External Chaser Tool. Similar to TR20M, but has 12.7 cm to 35.5 cm capacity. Uses same six chasers.

E TR25M Internal Chaser Set. Includes TR20-31M Set and Chaser Tool.

F TFM7530 Thread File. For any diameter right or left hand thread. Measures 8 1/2" x 7/16". Pitches: .75, 1.00, 1.25, 1.50, 1.75, 2.00, 2.50 and 3.00 mm.

G TCS1014 Chaser. 10 and 14 mm ends for snowmobiles and motorcycles. Length 2 1/4".

H TDM50 Die Set. Includes five dies.

TDM51	6-1 mm	TDM53	8-1.25 mm
TDM52	7-1 mm	TDM54	10-1.50 mm
TDM55 12-1.75 mm			

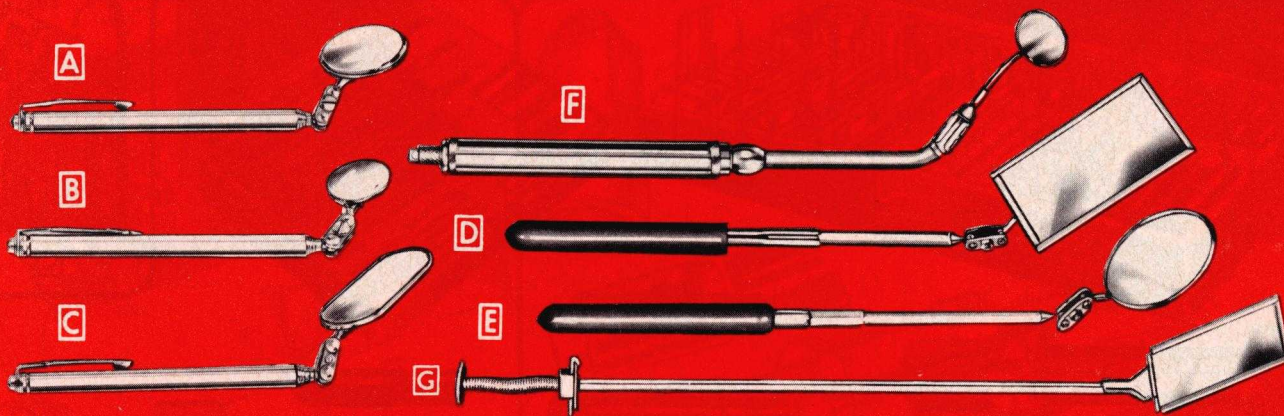
J TDM13A Spark Plug Tap Set.

T10100	10 mm x 1.00 Tap
T12125	12 mm x 1.25 Tap
T14125	14 mm x 1.25 Tap
T18150	18 mm x 1.50 Tap
T2818	7/8" x 18 N.F. Tap

K TCS1418ST Spark Plug Hole Reconditioner Set. Cleans spark plug holes and seats in one operation.

TCS14 Size 14 mm, 2 13/16" long.
TCS18 Size 18 mm, 2 5/8" long.
TCS14ST Size 14 mm tapered seat, 2 1/2" long.
TCS1418 Set. Includes TCS14 & 18 above.

L TDM101 Bolt & Thread Gauge. Includes bolt diameter gauge with a range of 2.3 to 24 mm in inch/decimal equivalents... plus a thread gauge with sizes .35 to 3 mm.



TELESCOPING DOUBLE HINGED MIRRORS

A CF143A Round Pocket Mirror. Handle extends from 4½" to 17" 1¼" diameter mirror. Hinge mechanism allows for 360° adjustment. Features handy pocket clip.

CF143M. Same design as CF143A above, except with a magnifying mirror.

B CF147A Small Round Pocket Mirror. Same design as CF143A at left, except with ¾" diameter mirror.

C CF157A Oval Pocket Mirror. Same design as CF143A at left, except with 1" x 2" oval shaped mirror.

D GA294 Rectangular Mirror. Double ball joints swivel mirror to 360° Electrolytic plated copper backing. Non-rotating telescoping rods. Vinyl grips. 2⅞" x 3½" mirror. Closed length 11¼", extended 15¼"

E GA295 Round Mirror. Same design as GA294 above, except with 2¼" diameter mirror. Closed length 10", extended 14"

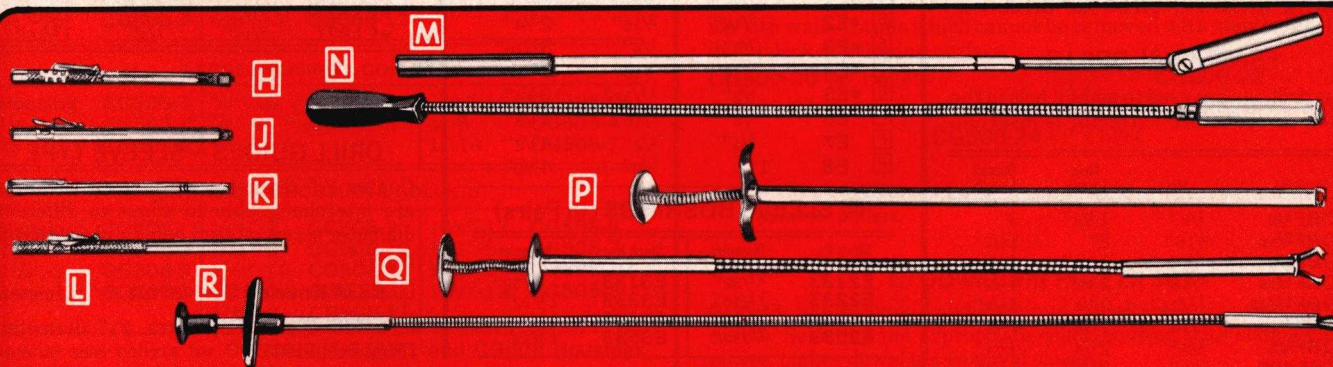
G HINGED RECTANGULAR MIRRORS

Plunger tilts mirror which holds at that position so view won't slip away. Same size mirrors are interchangeable.

Stock No.	Overall Length	Glass Mirror	Plastic Mirror	Mirror Size
GA51A	16½"	GA51A1	—	11½" x 29½"
GA51AP	16½"	—	GA51A1P	11½" x 29½"
GA52A	11"	GA52A1	GA52A1P	13½" x 1½"
GA53	16½"	GA53-1	GA53-1P	25½" x 33½"

F LIGHTED MIRROR KIT

CM285. Length 12" Mirror diameter 7/8". Two lucite rods (1 curved, 1 straight) project the light. Requires two "AA" batteries (not included).



PICK-UP TOOLS

H SSM5A Pick-up Tool & Screw Starter. Std. bit. 032" x 9/32" with magnet in handle end. Includes pocket clip.

J PTS5 Pick-up Tool & Scriber. Magnet in handle end, scriber screwed into other. Carbide steel scriber tip is replaceable. Pocket clip included with tool which is 5" long.

K PT5A Telescopic Pick-up Tool. Magnet on one end, pocket clip on other. Lifts about 6 oz. Closed length 5¼", extended length 17¾"

L PT7B Magnetic Pick-up Tool. Lifts 1 lb. and is 6" long.

M Hinged Head Pick-up Tools. Magnets fitted into ends of brass sleeves.

PT10B. Lifts 1 lb., 8⅞" long.

PT28B. Lifts 3½ lbs., 16¾" long but extends to 26¾"

PT30B. Lifts 6½ lbs., 17" long but extends to 27⅞"

N PT40 Flexible Pick-up Tool. Powerful magnet lifts about 3½ lbs. Overall length is 21", including a 14" flexible shaft.

MECHANICAL FINGERS

STANDARD SHAFT

P GA351 2-Claw Finger (14"). Jaws open to 1"

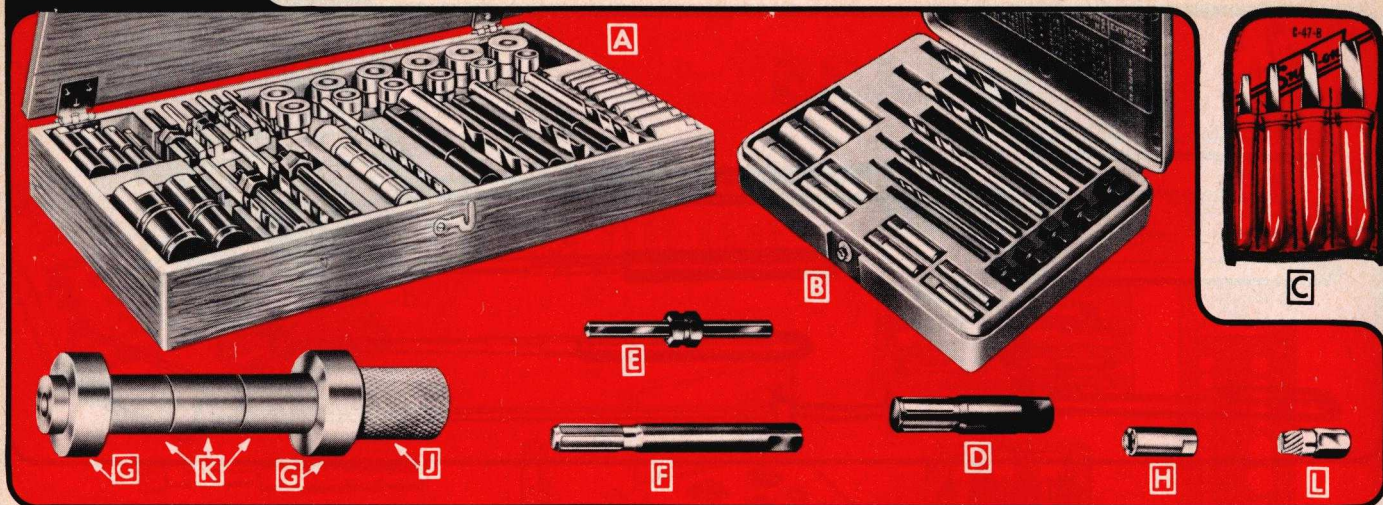
P GA354 4-Claw Finger (14½"). Jaws open to 1"

FLEXIBLE SHAFT

Q GA265A 2-Claw Finger (17¾"). Jaws open to 1" Flexible section 8"

Q GA353 4-Claw Finger (17½"). Jaws open to 1" Flexible section 8"

R YA837 4-Claw Finger (24¼"). Jaws open to ¾" Flexible section 17½"



Extractors are straight from end to end. When driven into a drilled hole in broken unit, flutes grip without reaming or slipping. Since they have no taper, they do not expand or distort sidewalls of holes.

Tightly embedded broken threaded ends can be drilled out to thin walled shells, safely seized and easily turned out. For replacement drill bits, see pages 160 and 161.

EXTRACTOR SETS

A E1025. Includes all the individual parts on this page except **C**, **L** or left hand drills, in a wooden case. Extracts broken screws 1/4" up to 1" diameter and standard pipe sizes 1/8" to 1".

B E1020. Includes the individual parts indicated by (•) symbol. Extracts broken screws 1/4" to 1/2" diameter and up to 1" below the surface. In E1020B Plastic Box.

C SR40K Taper-Bit Screw Extractor Set. Tapered end has left hand thread to bite deeper into drilled stud. Square shaft for use with wrench. Four extractors below are included in C47B Kit Bag:

SR4A 1/8", **SR10** 9/64", **SR14** 7/32", **SR20** 5/16"

FRACTIONAL DRILLS

These drill bits are used to make a hole in the broken screw before extractor is inserted.

Stock No.	Size	Flute Length	Overall Length
•DBF1/8	1/8"	13/8"	3"
•DBF3/16	3/16"	2"	3 1/2"
•DBF1/4	1/4"	2 1/2"	4"
•DBF5/16	5/16"	2 5/8"	4 1/2"
•DBF11/32	11/32"	2 3/4"	4 1/2"
DBF7/16	7/16"	17/8"	4 1/4"
DBF1/2	1/2"	2 1/4"	4 3/4"
CSE405	5/8"	2 1/2"	5 1/4"
DBL1/4A	1/4"	3 1/2"	6"

- For use with Sleeve-Type Drill Guides.

LEFT HAND DRILLS

These "stubby" left hand drills are ideal for use with screw extractors. Left hand configuration tends to loosen screw and provide firmer bite for extractor.

Stock No.	Size	Overall Length
DBLS1/8	1/8"	1 7/8"
DBLS3/16	3/16"	2 3/16"
DBLS1/4	1/4"	2 1/2"
DBLS5/16	5/16"	2 13/16"
DBLS11/32	11/32"	3"

DBLS105 Set. Includes 5 drills above.

PIPE & PLUG EXTRACTORS

Stock No.	For Std. Pipe	Use Drill	Overall Length
E80	1/8"	17/64"	2 1/4"
E81	1/4"	3/8"	2 1/2"
E82	3/8"	1/2"	2 3/4"
E83	1/2"	5/8"	3"
E84	3/4"	13/16"	3 1/4"
E85	1"	1 1/16"	3 1/2"

SCREW EXTRACTORS

Nos. **E1** thru **E5** are complete with special hex nut for turning.

Nos. **E6**, **E7** and **E8** have squared ends for turning.

Stock No.	For Screw Diam.	Use Drill	Overall Length
E • E1	1/4"	1/8"	2 5/16"
E • E2	5/16"	3/16"	2 3/4"
E • E3	3/8"	1/4"	3 1/16"
E • E4	7/16"	5/16"	3 5/16"
E • E5	1/2"	11/32"	3 3/4"
F E6	5/8"	7/16"	4 1/8"
F E7	3/4"	1/2"	4 1/2"
F E8	1"	5/8"	4 5/8"

SLEEVE BUSHINGS (In Pairs)

Stock No.	Diameter	Stock No.	Diameter
E2133	21/32"	E3133	31/32"
E2233	11/16"	E3333	1 1/32"
E2333	23/32"	E3433	1 1/16"
E2533	25/32"	E3533	1 3/32"

MULTI-SPLINE BOLT and STUD EXTRACTORS

Multi-spline construction combines strength and firm grip. Shoulder prevents extractor from entering too deeply and expanding stud. Studs don't wedge onto extractors for easy removal. Drill hole in stud and turn extractor into hole clockwise until stud is

removed. Extractors are marked with letters for identification.

REX25 Set. Includes one each of extractors in plastic tray.

REX10 Set. Includes 10 extractors, REX104 thru REX113.

Stock No.	Drill Size	Hex Size	Mark.	Stock No.	Drill Size	Hex Size	Mark.	Stock No.	Drill Size	Hex Size	Mark.
REX104	1/8"	1/2"	A	REX113	13/32"	1/2"	J	REX121	21/32"	7/8"	R
REX105	5/32"	1/2"	B	REX114	7/16"	5/8"	K	REX122	11/16"	7/8"	S
REX106	3/16"	1/2"	C	REX115	15/32"	5/8"	L	REX123	23/32"	7/8"	T
REX107	7/32"	1/2"	D	REX116	1/2"	5/8"	M	REX124	3/4"	7/8"	U
REX108	1/4"	1/2"	E	REX117	17/32"	3/4"	N	REX125	25/32"	1"	V
REX109	9/32"	1/2"	F	REX118	9/16"	3/4"	O	REX126	13/16"	1"	W
REX110	5/16"	1/2"	G	REX119	19/32"	3/4"	P	REX127	27/32"	1"	X
REX111	11/32"	1/2"	H	REX120	5/8"	3/4"	Q	REX128	7/8"	1"	Y
REX112	3/8"	1/2"	I								

CAUTION: Wear approved eye protection when using power tools.

DRILL GUIDES—SOLID TYPE

Used for centering drills at a depth not exceeding one inch.

Stock No.	Outside Diam.	For Drill	Overall Length
• E921	9/32"	1/8"	1 3/16"
• E1021	5/16"	1/8"	1 3/16"
• E1121	11/32"	1/8"	1 3/16"
• E1221	3/8"	1/8"	1 3/16"
• E1321	13/32"	3/16"	1 3/16"
• E1421	7/16"	3/16"	1 3/16"
• E1521	15/32"	3/16"	1 3/16"
• E1621	1/2"	3/16"	1 3/16"
• E1721	17/32"	1/4"	1 3/16"
• E1821	9/16"	1/4"	1 3/16"

DRILL GUIDES—SLEEVE TYPE

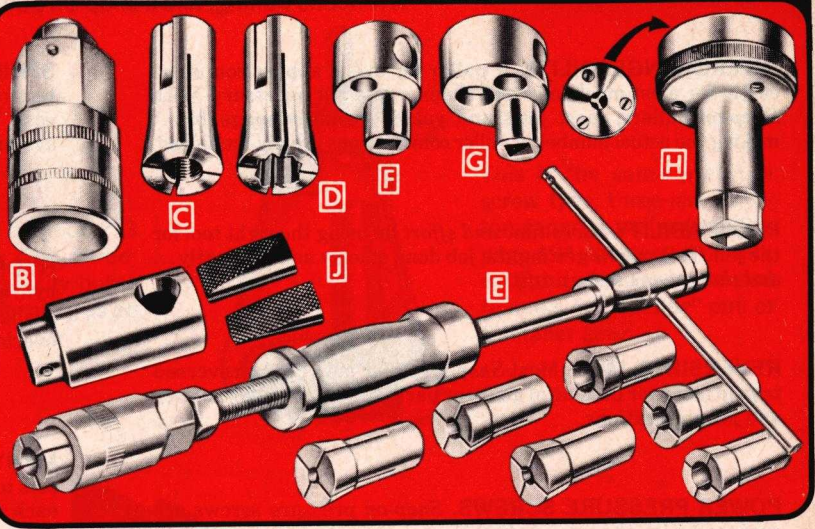
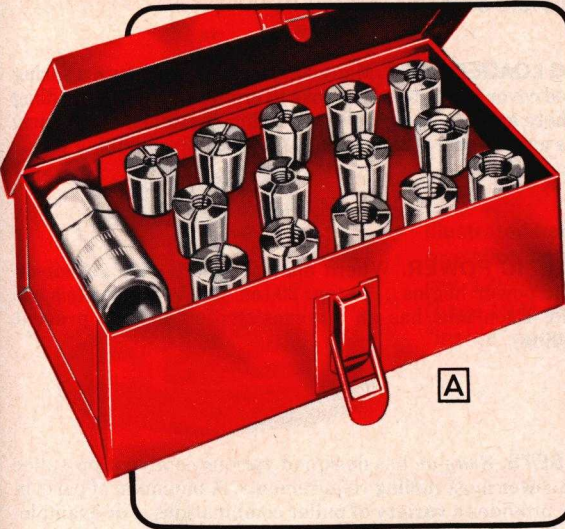
Center 1/4" diameter 6" long drills. Parts are interchangeable to adapt to different diameter screw or stud holes and depths up to 3 3/4".

J E33A Knurled Sleeve Nut. 3/4" diameter.

K E33B Sleeve Spacers. 5/8" diameter (Four included).

REMOVERS

Extractors



Tapered collets thread onto stud, even if only a few threads are exposed. Tightening the housing bolt draws collet into housing and

locks collet onto stud. Tools do not damage stud threads. Can be used with either manual or impact wrenches.

A CG515B Set. Contains CG500-2 Housing and 500-series collets, except CG500-17 and CG500-18, in KRA150 Metal Box. 1/4" to 3/8" range.

CG500 Set. Contains CG500-2 Housing and CG500-8, CG500-10 and CG500-12 Collets. For use on 3/8"-24, 7/16"-20 and 1/2"-20 threads.

CG505 Set. Contains CG505-1 Housing and CG505-2, CG505-3 and CG505-4 collets. Handles 3/4"-10, 7/8"-9 and 1"-8 thread studs.

B & C HOUSINGS and COLLETS

STANDARD SIZE HOUSING & COLLETS

Housing	CG500-2	3/8"-24	CG500-8	9/16"-18	CG500-14
1/4"-20	CG500-3	7/16"-14	CG500-9	5/8"-11	CG500-15
1/4"-28	CG500-4	7/16"-20	CG500-10	5/8"-18	CG500-16
5/16"-18	CG500-5	1/2"-13	CG500-11	10-24	CG500-17
5/16"-24	CG500-6	1/2"-20	CG500-12	10-32	CG500-18
3/8"-16	CG500-7	9/16"-12	CG500-13		

LARGE HOUSING & COLLETS

Housing	CG505-1	3/4"-16	CG505-5	7/8"-14	CG505-6
1 1/16"-16	CG505-8	7/8"-9	CG505-3	1"-8	CG505-4
3/4"-10	CG505-2			1"-14	CG505-7

EXTRA LARGE HOUSING & COLLETS

Housing	CG508	1 1/4"-7	CG508-3	1 3/8"-12	CG508-6
1 1/8"-7	CG508-1	1 1/4"-8	CG508-10	1 1/2"-6	CG508-7
1 1/8"-8	CG508-9	1 1/4"-12	CG508-4	1 1/2"-8	CG508-12
1 1/8"-12	CG508-2	1 3/8"-6	CG508-5	1 1/2"-12	CG508-8
		1 3/8"-8	CG508-11		

Special size collets for CG500-2, CG505-1 and CG508 Housings available on special order only.

B HEAVY DUTY HOUSINGS CG510. For stud sizes 1 1/8" thru 2"
CG511. For stud sizes 2 1/8" thru 2 1/2"
CG512. For stud sizes 2 5/8" thru 3"

NOTE: Collets for Heavy Duty Housings, *special order only*. Order by adding stud diameter and thread size to housing part number. (Example: CG510-2"-8.)

CAM and WEDGE-TYPE STUD REMOVERS

F A50 Stud Remover. 7/16" to 1/2" capacity. "V" shaped rack grips stud. Use 1/2" square drive handle. Grip releases when pressure relieved.

A50-4B Optional Rack. 5/16" to 3/8" capacity.

A54 Set. 5/16" to 1/2". Includes A50 and A50-4B.

G A36 Stud Remover. 1/2" to 3/4" capacity. Knurled wheel grips soft or hardened studs. Driving shank extends through both sides of housing to provide bearing surface on each side of wheel. Use with 1/2" drive handle.

CGM515B Set. Contains CG500-2 Housing and metric 500-series Collets in KRA150 Metal Box. 6 mm x 1 mm to 16 mm x 2 mm range.

C STANDARD SIZE METRIC COLLETS

6 mm x 1 mm	CG500-30	10 mm x 1.50 mm	CG500-43
7 mm x 1 mm	CG500-33	12 mm x 1.25 mm	CG500-48
8 mm x 1 mm	CG500-36	12 mm x 1.50 mm	CG500-49
8 mm x 1.25 mm	CG500-37	14 mm x 1.50 mm	CG500-54
9 mm x 1 mm	CG500-39	14 mm x 2 mm	CG500-55
9 mm x 1.25 mm	CG500-40	16 mm x 1.50 mm	CG500-60
10 mm x 1.25 mm	CG500-42	16 mm x 2 mm	CG500-61

D SERRATED COLLETS

Use with CG500-2 Housing. Serrated gripping portions remove smooth walled studs which cannot be removed with standard collets due to lack of gripping surface.

CG500-20 1/4" Collet

CG500-22 3/8" Collet

CG500-21 5/16" Collet

CG500-23 7/16" Collet

CG500-24 1/2" Collet

CAUTION: Wear approved eye protection when using slide hammer pullers.

E DOWEL PIN PULLER SET

CG503. Set includes a slide hammer puller and seven smooth-bore collets. Selecting the appropriate collet, coupled with slide hammer power, makes dowel pin removal easier.

CG503 PARTS and COLLETS

T-Bar	CG10F	Housing	CG503-1	7/16"	CG503-5
Screw	CG503-8A	1/4"	CG503-2	1/2"	CG503-6
Hammer	CG250-9	5/16"	CG503-3	9/16"	CG503-7
Nut	CG325-6	3/8"	CG503-4	5/8"	CG503-8

H A80A Stud Remover. Patent No. 2,613,564. 1/4" to 1/2". Three jaws automatically close to stud size and grip when pressure applied. Release pressure to release jaws for built-in ratchet action. Needs only 1/4" clearance between stud and obstruction. 1/2" protrusion of stud for good grip. Long studs can run through top opening. Use with 1/2" drive handle or 1" wrench.

I LA55A Heavy Duty Stud Remover. 5/16" to 1". Grip can be released by turning tool in reverse direction. Use with 3/4" drive handle. Works on wedge principle. Two wedge sizes included: LA55-2 and LA55-3, both 2 1/8" long.

PULLING with POWER... *Snap-on*

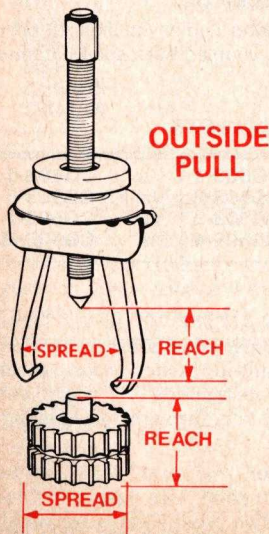
If it needs pulling, use a Snap-on puller. Here's why:

- **INTERCHANGEABILITY.** A puller for every application is too costly for most mechanics and shops...and not necessary. With *Snap-on* pullers, most jaws and yokes are interchangeable...making the actual number of puller combinations greatly multiplied.
- **PROFITABILITY.** *Saves time and effort* by using the right tool for the job. This means getting the job done quickly and efficiently...and that means more profit.
- **REVERSIBLE JAWS.** Most *Snap-on* puller jaws can be reversed to grip inside or outside of gears or parts for wider puller variety and job applications.
- **POWER PRESSURE SCREWS.** *Snap-on* pressure screws are designed with the proper diameter and number of threads per inch for smooth operation.
- **SPRING LOADED JAWS.** Many *Snap-on* pullers feature a spring tensioned cover plate above the yoke to provide increased handling ease. There are also clamp bolt type locking systems, control arm systems and several other systems for specialized pulling jobs.
- **HYDRAULIC POWER.** Where manual power ends...*Snap-on* hydraulic power begins...10-ton, 20-ton and 50-ton models are available. Each unit has an automatic cutoff to help prevent overloading.
- **MANY SETS.** *Snap-on* has designed various combination puller sets to answer most pulling requirements. A minimum of parts in each set provides a variety of puller combinations. For example, one set features parts to assemble 35 basic pullers...with over 165 possible combinations.

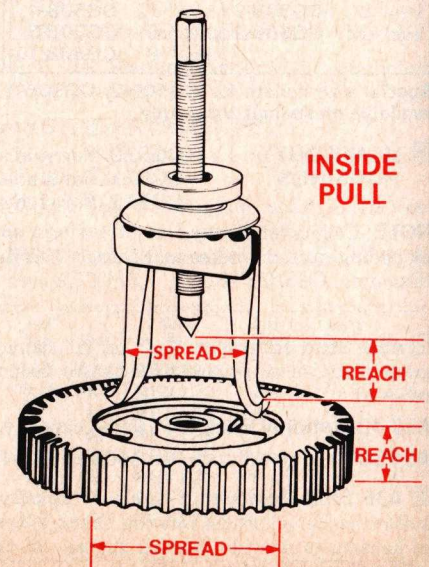
PULLER SAFETY TIPS

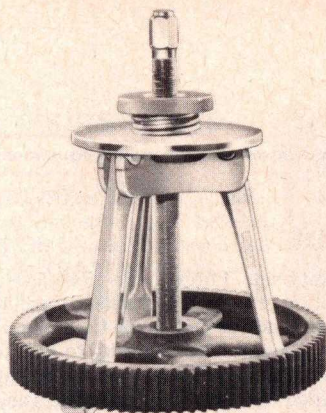
1. Always wear approved eye protection when using pulling equipment.
2. Do not heat the jaws of pullers...when heating bearings or gears be sure the torch does not touch the puller jaws, because it can change their temper.
3. Be sure that pressure screw threads are cleaned and well lubricated when using impact tools on pullers.
4. Always use protective tip or removable point to prevent pressure screw from mushrooming or splitting.
5. Make sure puller isn't cocked at an angle when using.
6. Always be aware of hand position when using slide hammer pullers. Make sure hands are well away from the hammer.
7. Don't use any puller with worn or damaged parts.
8. Always use a three-jaw puller whenever possible.
9. Don't overstress pullers...use the largest size possible to efficiently do the job.
10. Always maintain a proper fluid level in hydraulic pumps.
11. Always use a pressure gauge with hydraulic pullers.
12. Never keep pressure on a hydraulic ram...when job is finished, immediately release ram pressure.
13. Periodically inspect hydraulic lines for cuts, splits or cracks.
14. Always be sure hydraulic connections are tightly secured.
15. Use blind hole bearing pullers rather than torches, chisels, screwdrivers, hammers, prybars, etc. A blind hole puller provides 360° of steady, even pulling power.
16. Protect bystanders and yourself by screening puller applications.

TO SELECT THE PROPER PULLER



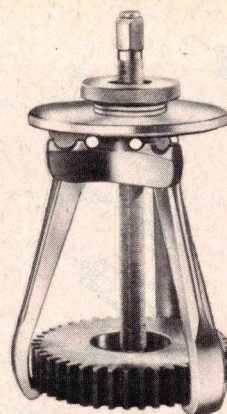
As shown in the "outside" configuration at left and the "inside" one at right, *reach* and *spread* are the most important factors when determining the correct puller for the job. The puller selected should always have dimensions larger than, or at least equal to, the gear being pulled. If reach and spread are determined accurately, you will usually have the proper puller with more than adequate power. If you're not sure, simply select the next larger size. *Always use a 3-jaw puller whenever possible.*





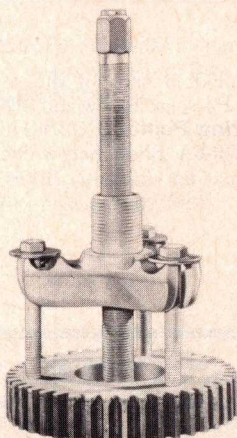
INSIDE PULL

Illustrated here is the CG273 pressure screw type, three-jaw, 12 1/2-ton capacity puller (page 194) performing as an "inside" puller.



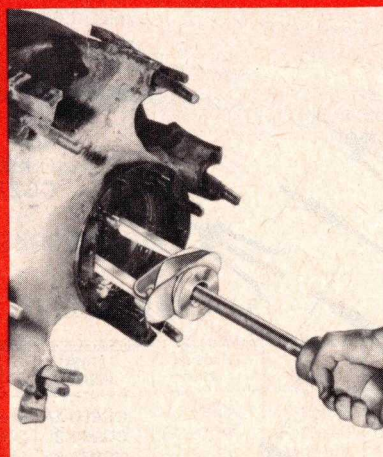
OUTSIDE PULL

This is the same pressure screw type, three-jaw, 12 1/2-ton capacity puller (CG273, page 194) illustrated far left, except its jaws are reversed to make an "outside" pull of a smaller gear.



TAPPED HOLE PULL

Even more versatility for the CG273 (page 194) illustrated above and upper right. Here it is used as a slotted yoke puller. The jaws have been removed, and cap screws and washers have been added for "tapped hole" grip.

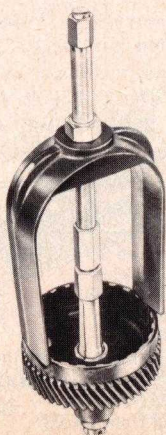


SLIDE HAMMER PULL

Here the CG250H slide hammer type, two-jaw puller (page 195) is illustrated being used for an inside pull ...ideal where a pressure screw can't be used.

BLIND HOLE PULL

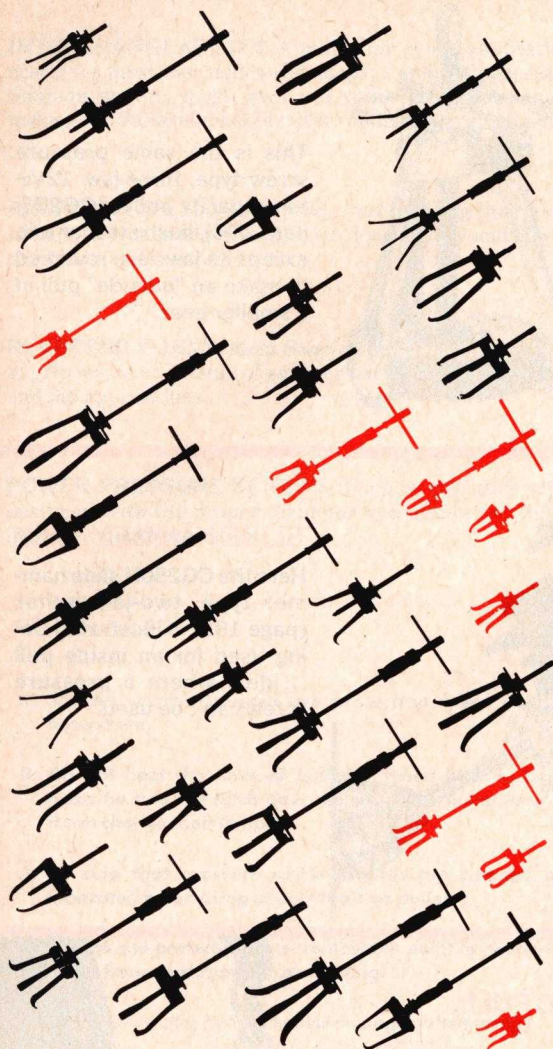
Shown here is the CG45 blind hole bearing puller (page 205) effectively pulling the bearing from a large gear. Our blind hole pullers, too, feature both pressure screw or slide hammer power.



10-, 20- and 50-TON HYDRAULIC PULL



When the job gets too big to handle manually...then hydraulic power is ready to take over. Illustrated here is the CG405HYA three-jaw, 20-ton capacity, hydraulic puller (page 197) utilizing its CG420A ram and pump (page 196) to extract a stubborn gear. A wide variety of hydraulic power is available (pages 196 through 199) ...from our 10-ton units (page 196) to the big 50-ton presses (page 199).



36 Possible Variations with CG2500B Set...and more can be made.

CAUTION: Always wear approved eye protection when using pulling equipment.

QUALITY...VERSATILITY...VALUE...

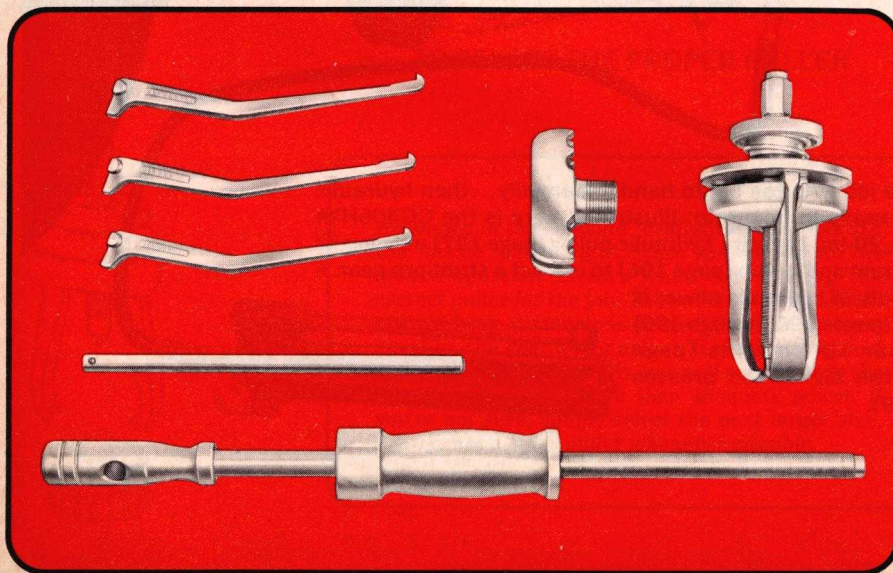
...key words to describe these medium-duty sets. Forged, one-piece jaws are spring loaded, reversible and feature positive grip for safety and convenience. Jaws and yokes are interchangeable within each set for more than 36 puller variations that can be applied with either pressure screw for up to 12½ tons of pulling power...or slide hammer power. Other *Snap-on* parts are interchangeable so various adaptors can be added to tackle an even larger variety of jobs. And those really tough jobs are no challenge to these sets...just add hydraulic power for both pulling ease and safety (see CG1224 Power Kit, page 196).

NOTE: All of the parts listed below are included in each of the sets...described opposite on page 193. CG250-1A Pressure Screw and CG250-8 Slide Screw include **CG250-20 Centering Points**; CG270-1A and CG270-11A Pressure Screws and CG270-8A Slide Screw include **CG270-20 Centering Points**.

SET CONTENTS

STOCK NUMBER	DESCRIPTION	STOCK NUMBER	DESCRIPTION
CG250-1A	Pressure Screw (5/8"-18x67/8")	CG270-1A	Pressure Screw (3/4"-16x93/16")
CG250-2	2-Jaw Yoke	CG270-2	2-Jaw Yoke
CG250-3	Short Jaw (3)	CG270-3	Short Jaw (3)
CG250-5	Lock Plate	CG270-3S	Heavy Duty Jaw (3)
CG250-6	Spring	CG270-5	Lock Plate
CG250-7	Adjusting Nut	CG270-6	Spring (2)
CG250-8A	Slide Screw (5/8"-18x189/16")	CG270-7	Adjusting Nut (2)
CG250-9	Slide Hammer	CG270-8A	Slide Screw (3/4"-16x233/8")
CG250-10	Long Thin Jaw (3)	CG270-10	Long Jaw (3)
CG253-2	3-Jaw Yoke	CG270-11A	Pressure Screw (3/4"-16x121/16")
CG10F	Cross Bar	CG273-2	3-Jaw Yoke
CG66-2	Slide Hammer	CG273-5	Lock Plate

MEDIUM DUTY GENERAL PURPOSE SET (UP to 7½-TON)



CG1500 Set. Includes 15 interchangeable parts for making 8 basic pullers...for inside or outside pulls (see red silhouettes above) with more than 12 possible variations. The components in this set (listed below) are included in its larger "sister" set above...giving you the means to add parts and build up to the CG2500B. *Can make pullers CG250, 250H, 250HL, 253 and 253H from this set.*

STOCK NUMBER	DESCRIPTION
CG250-1A	Pressure Screw (5/8"-18x67/8")
CG250-2	2-Jaw Yoke
CG250-3	Short Jaw (3)
CG250-5	Lock Plate
CG250-6	Spring
CG250-7	Adjusting Nut
CG250-8A	Slide Screw (5/8"-18x189/16")
CG250-9	Slide Hammer
CG250-10	Long Thin Jaw (3)
CG253-2	3-Jaw Yoke
CG10F	Cross Bar

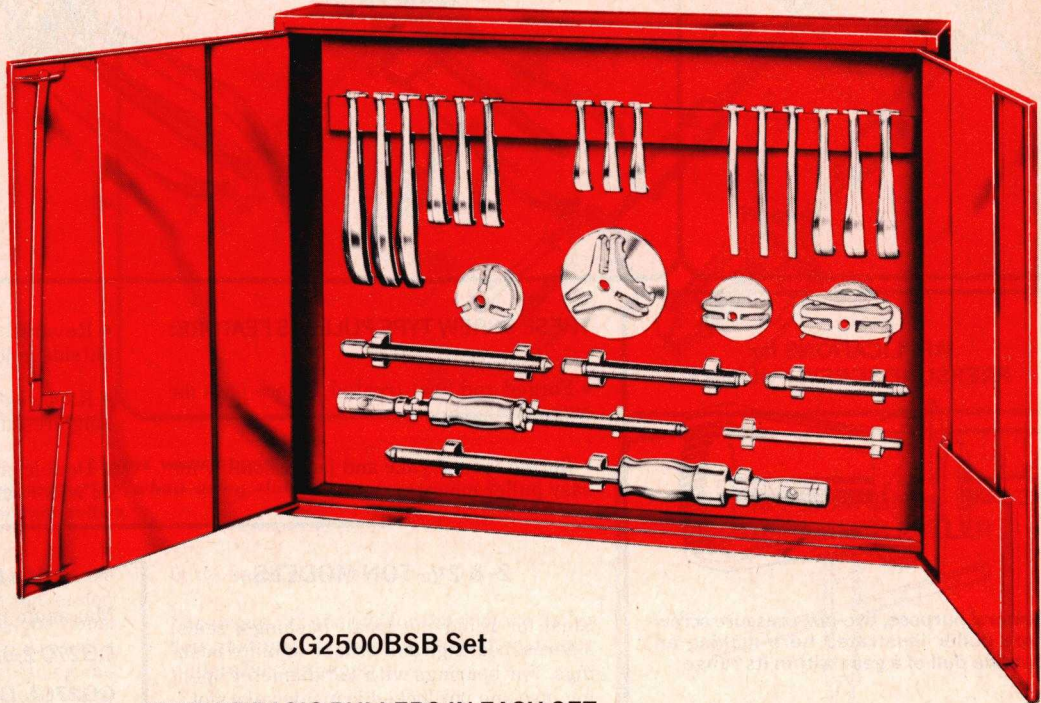
FOUR BIG SETS

CG2500BSB. Includes all parts listed opposite (page 192) on **VE113B** Display Board mounted inside **KRA270A** Metal Wall Cabinet as illustrated at right.

CG2500BS. Includes all parts listed opposite (page 192) on **VE113B** Display Board.

CG2500BB. Includes all parts listed opposite (page 192) in **KRA109** Metal Box.

CG2500B. Includes all parts listed opposite (page 192).

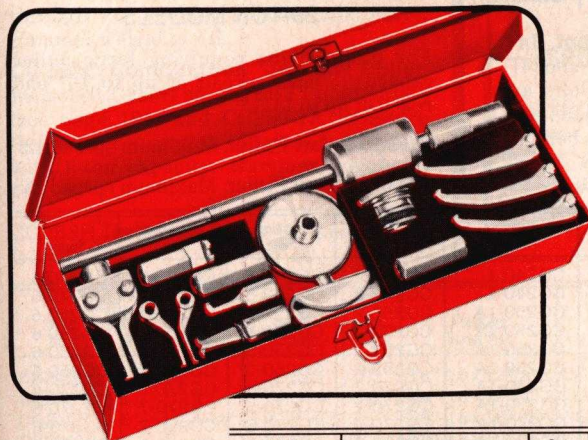


CG2500BSB Set

TWELVE BASIC PULLERS IN EACH SET

Stock No.	Capacity in Tons	Outside Spread	Inside Spread	Max. Reach	Screw Thread	Yoke	Jaw No.	Pressure Screw	Spring	Locking Plate	Adjusting Nut	Slide Hammer	Cross Bar
CG250	6	0-4 1/2"	1 1/2-3 1/2"	3"	5/8"-18	CG250-2	CG250-3(2)	CG250-1A	CG250-6	CG250-5	CG250-7	—	—
CG250H	—	0-4 1/2"	1 1/2-3 1/2"	3"	5/8"-18	CG250-2	CG250-3(2)	CG250-8A	CG250-6	CG250-5	CG250-7	CG250-9	CG10F
CG250HL	—	0-5 1/4"	3/4-8"	6"	5/8"-18	CG250-2	CG250-10(2)	CG250-8A	CG250-6	CG250-5	CG250-7	CG250-9	CG10F
CG253	7 1/2	0-4 1/2"	1 1/2-3 1/2"	3"	5/8"-18	CG253-2	CG250-3(3)	CG250-1A	CG250-6	CG250-5	CG250-7	—	—
CG253H	—	0-4 1/2"	1 1/2-3 1/2"	3"	5/8"-18	CG253-2	CG250-3(3)	CG250-8A	CG250-6	CG250-5	CG250-7	CG250-9	CG10F
CG253L	7 1/2	0-5 1/4"	3/4-8"	6"	5/8"-18	CG253-2	CG250-10(3)	CG250-1A	CG250-6	CG250-5	CG250-7	—	—
CG270	10	0-8 1/2"	2 1/2-7"	5 1/2"	3/4"-16	CG270-2	CG270-3(2)	CG270-1A	CG270-6	CG270-5	CG270-7	—	—
CG270H	—	0-8 1/2"	2 1/2-7"	5 3/8"	3/4"-16	CG270-2	CG270-3(2)	CG270-8A	CG270-6	CG270-5	CG270-7	CG270-9	CG10F
CG270S	10	0-8 1/2"	2 1/2-7"	47/8"	3/4"-16	CG270-2	CG270-3(2)	CG270-1A	CG270-6	CG270-5	CG270-7	—	—
CG273	12 1/2	0-8 1/2"	2 1/2-7"	5 1/2"	3/4"-16	CG273-2	CG270-3(3)	CG270-1A	CG270-6	CG273-5	CG270-7	—	—
CG273H	—	0-8 1/2"	2 1/2-7"	5 3/8"	3/4"-16	CG273-2	CG270-3(3)	CG270-8A	CG270-6	CG273-5	CG270-7	CG270-9	CG10F
CG280	10	0-10"	3-8"	8"	3/4"-16	CG270-2	CG270-10(2)	CG270-11A	CG270-6	CG270-5	CG270-7	—	—
CG283	12 1/2	0-10"	3-8"	8"	3/4"-16	CG273-2	CG270-10(3)	CG270-11A	CG270-6	CG270-5	CG270-7	—	—

LIGHT DUTY SET (UP to 2 1/2-TON)



Components of CG2400B Puller Set

CG2400B Interchangeable Puller Set. The pullers made by this light-duty set remove small seals, sleeves, bearings, grease retainers, bronze or oilite bushings, bearing races and bushings (as small as 3/8" I.D.) and removes sheet metal dents. The two sets of smaller jaws range for inside pulling from 25/64" to 1/4". Large jaws have 3" maximum spread on outside holds and 2 1/2" jaw reach. They work through a 7/8" opening for inside pulls. The set offers the advantages of 2-jaw or 3-jaw pulling grip and a choice of pressure screw or slide hammer operation.

This set makes five basic small pullers as follows:

CG243 (See page 194.)

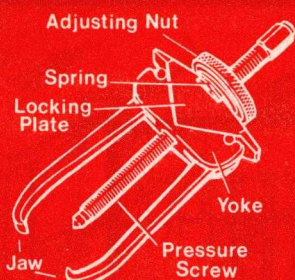
CG243H (See page 195.)

CG240 (See page 194.)

CG240H (See page 195.)

CJ93B (See page 204.)

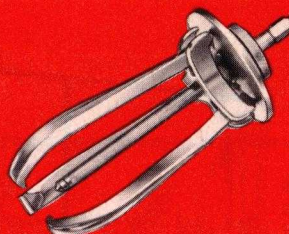
Part No.	Description	Qty.	Part No.	Description	Qty.	Part No.	Description *	Qty.
CG243	3-Jaw Puller	1	CJ93-3-1	Jaw Holder	1	CJ93-5	Bearing Hook	1
CG240-2	2-Way Yoke	1	A78-3	Large Jaw	2	CJ93-6A	Metal Dent Remover	1
CG240-5	2-Way Lock Plate	1	A78-6B	Jaw Pin	2	CJ93-7	5/16"-24 Stud Adaptor	1
CJ93-1	Slide Screw	1	A78-4	Small Jaw	2	CJ93-8	3/8"-24 Stud Adaptor	1
CJ93-2	Slide Hammer	1	CJ93-4	Grease Ret. Adaptor	1	KRA104	Metal Case	1



Nomenclature



2-Jaw Puller

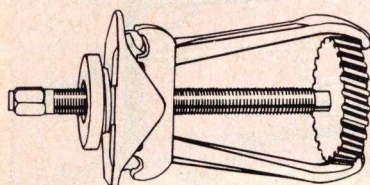


3-Jaw Puller

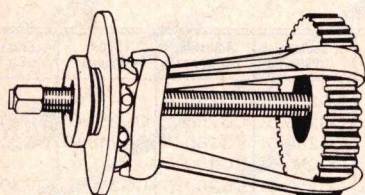


**CG1
Pulling Plate
Attachment**

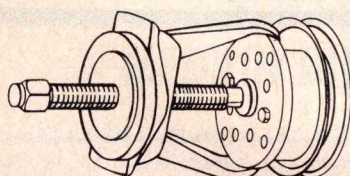
APPLICATIONS for PRESSURE SCREW PULLERS



General purpose, two-jaw, pressure screw type puller illustrated here making an outside pull of a gear within its range.



Here a general purpose, three-jaw, pressure screw puller is handling a larger, more brittle gear than above. Three jaws mean a more stable grip, better distribution of pulling strain and more pulling power.



Shown here is the same two-jaw puller as above clamped behind the CG1 optional pulling plate which is attached to an air conditioner pulley...ideal for use where no gripping surface is otherwise available.

THESE SCREW TYPE PULLERS FEATURE:

- Forged and heat-treated 1-piece jaws for extra strength.
- Spring loaded yoke and jaw assembly for easy puller mounting.

- Reversible jaws for either inside or outside holds.
- Replaceable points on larger models for long pressure screw life.
- Double slotted yokes for better gripping on wider range of jobs.

2- & 2½-TON MODELS

Ideal for removing small bushings, seals, sleeves, bearings and bronze or oilite bushings. For bearings with ½" diameter opening, use one jaw locked in inside yoke slot.

CG240 2-Jaw Puller. 2 ton capacity.

CG243 3-Jaw Puller. 2½ ton capacity.

6- & 7½-TON MODELS

Maximum jaw spread of 5¼" reach 6"

CG250 2-Jaw Puller. 6-ton capacity.

CG250A Combination 2-Jaw Puller. Includes CG250 puller plus CG1 Pulling Plate attachment (described below).

CG253 3-Jaw Puller. 7½-ton capacity.

CG253L 3-Jaw Puller. Longer jaws (CG250-10) for more reach and spread. *Interchange these jaws for those on the CG250 above for more reach with a 2-jaw puller.*

PULLER ACCESSORY

CG1 Pulling Plate Attachment. Includes 8 bolts... (4) ¼"-20x¾" and (4) ¼"-28x1", plus the plate. Bolts are inserted through plate and into tapped gear holes. Puller jaws clamp behind plate. Plate has 3⅝" dia.

10- & 12½-TON MODELS

Maximum jaw spread of 10" reach 8¼"

CG270 2-Jaw Puller. 10 ton capacity.

CG270A Combination 2-Jaw Puller. Includes CG270 puller plus CG1 Pulling Plate Attachment (described at lower left).

CG270S Special Grip 2-Jaw Puller. This is the CG270 puller, but with two CG270-3S special gripping jaws (described on page 195). Jaws also work with CG273 puller.

CG273 3-Jaw Puller. 12½ ton capacity.

CG273A Combination 3-Jaw Puller. Includes CG273 puller plus CG1 Pulling Plate Attachment (described at lower left).

CG272 2-Jaw Puller. 10 ton capacity. This is the CG270 puller with an extra pair of jaws to provide extra spread and reach.

CG280 2-Jaw Puller. 10 ton capacity. For jobs requiring longer jaw and spread.

CG283 3-Jaw Puller. 12½ ton capacity.

20-TON MODELS

For pulling jobs requiring large puller capacity...jaws spread of up to 16" and reach of up to 14⅝"

CG300 2-Jaw Puller. Maximum spread 12"

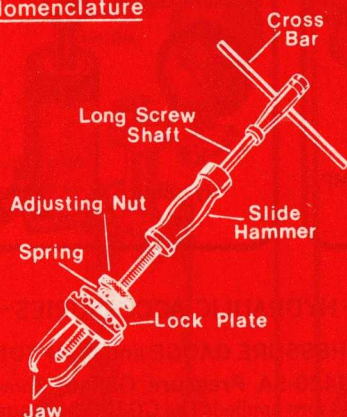
CG305 2-Jaw Puller. Maximum spread 16"

Stock No.	Capacity in Tons	Outside Spread	Inside Spread	Jaw Reach	Pressure Screw Size	Jaw No.	Pressure Screw	Yoke	Locking Plate	Adjusting Nut	Spring
CG240	2	0-3"	7/8-3¼"	2½"	3/8"-16x 5¼"	CG240-3(2)	CG240-1	CG240-2	CG240-5	CG240-7	CG240-6
CG243	2½	0-3"	7/8-3¼"	2½"	3/8"-16x 5¼"	CG240-3(3)	CG240-1	CG243-2	CG243-5	CG240-7	CG240-6
CG250	6	0-4½"	1½-3½"	3"	5/8"-18x 6⅞"	CG250-3(2)	CG250-1A	CG250-2	CG250-5	CG250-7	CG250-6
CG250A	6	0-4½"	1½-3½"	3"	5/8"-18x 6⅞"	CG250-3(2)	CG250-1A	CG250-2	CG250-5	CG250-7	CG250-6
CG253	7½	0-4½"	1½-3½"	3"	5/8"-18x 6⅞"	CG250-3(2)	CG250-1A	CG253-2	CG250-5	CG250-7	CG250-6
CG253L	7½	0-5¼"	3/4-8"	6"	3/8"-18x 6⅞"	CG250-10(3)	CG250-1A	CG253-2	CG250-5	CG250-7	CG250-6
CG270	10	0-8½"	2½-7"	5½"	3/4"-16x 9¼"	CG270-3(2)	CG270-1A	CG270-2	CG270-5	CG270-7	CG270-6
CG270A	10	0-8½"	2½-7"	5½"	3/4"-16x 9¼"	CG270-3(2)	CG270-1A	CG270-2	CG270-5	CG270-7	CG270-6
CG270S	10	0-8½"	2½-7"	5½"	3/4"-16x 9¼"	CG270-3(2)	CG270-1A	CG270-2	CG270-5	CG270-7	CG270-6
CG273	12½	0-8½"	2½-7"	5½"	3/4"-16x 9¼"	CG270-3(3)	CG270-1A	CG273-2	CG273-5	CG270-7	CG270-6
CG273A	12½	0-8½"	2½-7"	5½"	3/4"-16x 9¼"	CG270-3(3)	CG270-1A	CG273-2	CG273-5	CG270-7	CG270-6
CG272	10	0-8½"	2½-7"	5½"	3/4"-16x 12½"	CG270-3(2)	CG270-11A	CG270-2	CG270-5	CG270-7	CG270-6
CG280	10	0-10"	3-8"	8¼"	3/4"-16x 12½"	CG270-10(2)	CG270-11A	CG270-2	CG270-5	CG270-7	CG270-6
CG283	12½	0-10"	3-8"	8¼"	3/4"-16x 12½"	CG270-10(3)	CG270-11A	CG273-2	CG273-5	CG270-7	CG270-6
CG300	20	0-12"	3½-10"	9½"	1"-14x15"	CG300-3(2)	CG300-1	CG300-2	CG300-5	CG300-7	CG300-6
CG305	20	0-16"	5-13"	14⅝"	1"-14x19"	CG305-9(2)	CG305-8	CG300-2	CG300-5	CG300-7	CG300-6

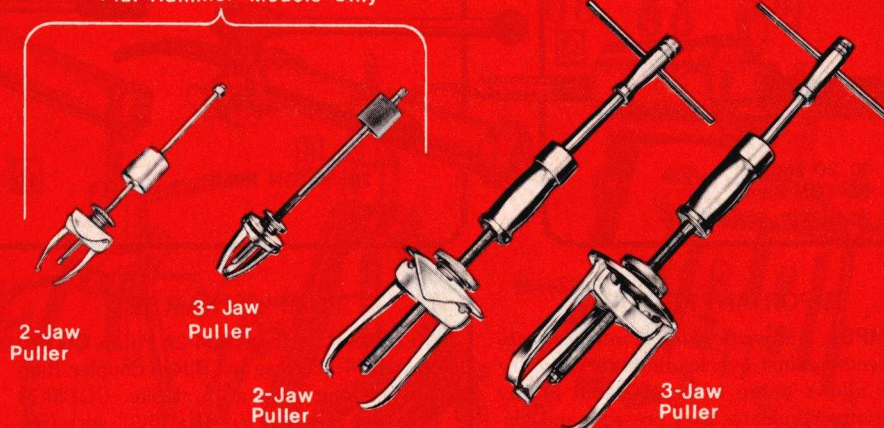
SLIDE HAMMER — GENERAL PURPOSE

Pullers

Nomenclature



1 lb. Hammer Models Only



CAUTION: Always wear approved eye protection when using slide hammer pullers.

All slide hammers on this page feature reversible jaws allowing for easy conversion to either inside or outside pulling positions. They can also be converted to pressure screw type pullers by simply replacing the slide hammer screw with a pressure screw

in the same puller series.

See pages 192 and 193 for the various puller sets that include most of the slide hammer pullers on this page.

SMALL-HAMMER MODELS

For 1/2" diameter bearing, use only one jaw in the inside yoke slot.

CG240H Two-Jaw Puller. Hammer weight is 1 lb.

CG243H Three-Jaw Puller. Hammer weight is 1 lb.

MEDIUM-HAMMER MODELS

CG250H Two-Jaw Puller. Hammer weight is 2 lb.

CG250HL Two-Jaw Puller. Includes CG250H but with longer CG250-10 Jaw which works through 3/4" opening (inside pulls only). Hammer weight is 2 lb.

CG250C Combination Two-Jaw Puller. Includes CG250H above, CG1 Pulling Plate (see page 194) and CG250-1A Pressure Screw for conversion to screw-type puller with 6-ton capacity. Hammer weight is 2 lb.

CG253H Three-Jaw Puller. Hammer weight is 2 lb.

LARGE-HAMMER MODELS

CG270H Two-Jaw Puller. Hammer weight is 3 1/2 lb.

CG270C Combination Two-Jaw Puller. Includes CG270H above, CG1 Pulling Plate (see page 194) and CG270-1A Pressure Screw for conversion to screw-type puller with 10-ton capacity. Hammer weight is 3 1/2 lb.

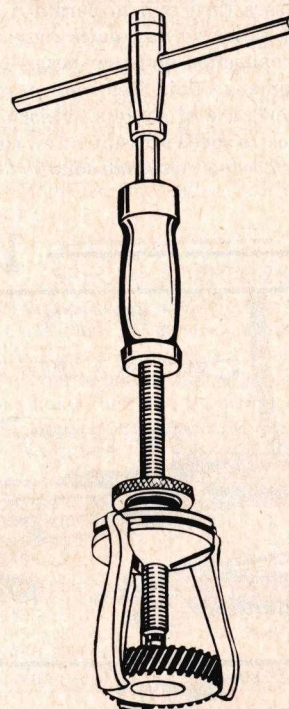
CG273H Three-Jaw Puller. Hammer weight is 3 1/2 lb.

CG273C Combination Three-Jaw Puller. Includes CG273H above, CG1 Pulling Plate attachment (see page 194) and CG270-1A Pressure Screw for conversion to screw-type puller with 12 1/2 ton capacity. Hammer weight is 3 1/2 lb.

OPTIONAL SPECIAL GRIPPING JAWS

CG270-3S Jaw (one each). Special jaw features greater tip surface for extra pulling power. Interchangeable on the CG270 and CG273 Pressure Screw Pullers (see page 194) and CG270H and CG273H Slide Hammer Pullers above.

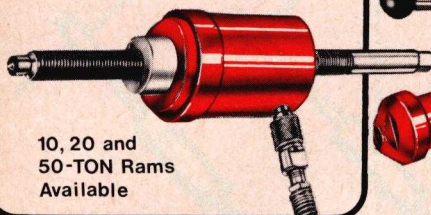
APPLICATION for SLIDE HAMMER PULLER



Illustrated here is the CG253H general purpose, three-jaw, slide hammer style puller removing a small gear. When used with the cross bar, the puller becomes an excellent combination pushing and pulling tool, and when there is no center shaft for the pressure screw... hammer blows alone can probably drive the gear off.

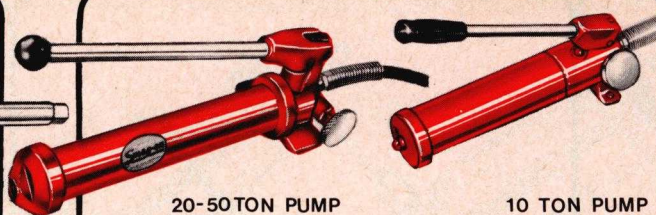
Stock No.	Hammer Weight in lb.	Outside Spread	Inside Spread	Max. Reach	Pressure Screw Size	Yoke	Jaw No.	Locking Plate	Spring	Adjusting Screw	Pressure Screw	Slide Hammer	Combination Parts	
													Pulling Plate	Pressure Screw
CG240H	1	0-3"	7/8-3 1/4"	2 1/2"	3/8"-16 x 12 5/8"	CG240-2	CG240-3	CG240-5	CG240-6	CG240-7	CG240-8	CG240-9		
CG243H	1	0-3"	7/8-3 1/4"	2 1/2"	3/8"-16 x 12 5/8"	CG243-2	CG240-3	CG243-5	CG240-6	CG240-7	CG240-8	CG240-9		
CG250H	2	0-4 1/2"	1 1/2-3 1/2"	3"	5/8"-18 x 18 9/16"	CG250-2	CG250-3	CG250-5	CG250-6	CG250-7	CG250-8A	CG250-9		
CG250HL	2		3/4-8"	6"	5/8"-18 x 18 9/16"	CG250-2	CG250-10	CG250-5	CG250-6	CG250-7	CG250-8A	CG250-9		
CG250C	2	0-4 1/2"	1 1/2-3 1/2"	3"	5/8"-18 x 18 9/16"	CG250-2	CG250-3	CG250-5	CG250-6	CG250-7	CG250-8A	CG250-9	CG1	CG250-1A
CG253H	2	0-4 1/2"	1 1/2-3 1/2"	3"	5/8"-18 x 18 9/16"	CG253-2	CG250-3	CG250-5	CG250-6	CG250-7	CG250-8A	CG250-9		
CG270H	3 1/2	0-8 1/2"	2 1/2-7"	5 1/2"	3/4"-16 x 23 3/8"	CG270-2	CG270-3	CG270-5	CG270-6	CG270-7	CG270-8A	CG66-2		
CG270C	3 1/2	0-8 1/2"	2 1/2-7"	5 1/2"	3/4"-16 x 23 3/8"	CG270-2	CG270-3	CG270-5	CG270-6	CG270-7	CG270-8A	CG66-2	CG1	CG270-1A
CG273H	3 1/2	0-8 1/2"	2 1/2-7"	5 1/2"	3/4"-16 x 23 3/8"	CG273-2	CG270-3	CG273-5	CG270-6	CG270-7	CG270-8A	CG66-2		
CG273C	3 1/2	0-8 1/2"	2 1/2-7"	5 1/2"	3/4"-16 x 23 3/8"	CG273-2	CG270-3	CG273-5	CG270-6	CG270-7	CG270-8A	CG66-2	CG1	CG270-1A

Pullers



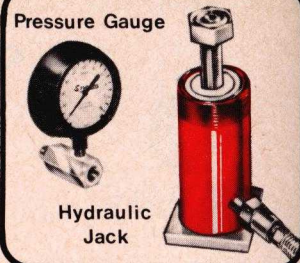
10, 20 and
50-TON Rams
Available

HYDRAULIC POWER UNITS



20-50 TON PUMP

10 TON PUMP



Pressure Gauge

Hydraulic
Jack

IMPORTANT FEATURES

PUMPS...Automatic cutoff at rated capacity protects against overloading; accumulator sack allows pump to be operated in any position — eliminates back pressure and contaminants from entering system.

RAMS...Spring loaded mechanism retracts pressure screw when hydraulic pressure is released; hollow center means pressure screw passes thru ram to permit a wide variety of puller set-ups; quick connectors for fast connection of pump hose — check valves minimize fluid loss; hex pressure screw allows use of sockets, wrenches or impact tools to speed pressure screw adjustment; replaceable centering adaptors.

PUMP and RAM SET

CG122 Set. Includes **BJ4-2A** Pump, **CG120** Ram, **BJ4-3B** Hose and **BJ4-4** Coupler. Ram is 4 3/4" long with a 1" stroke. **CG120-13** Pressure Screw is 3/4"-10 x 16 1/4" with free moving center tip.

POWER KIT

CG1224 Kit (not shown). Convert **CG270**, **CG273**, **CG280** and **CG283** pullers (pages 194 and 195) to hydraulic power. Kit includes: **CG122** Pump and Ram, **CG270-16** Adaptor, **CG270-15** Two-Jaw Yoke and **CG273-15** Three-Jaw Yoke.

CAUTION: Always wear approved eye protection when operating pulling equipment.

HYDRAULIC ACCESSORIES

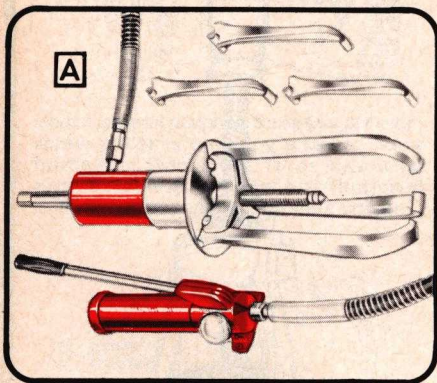
PRESSURE GAUGE and ADAPTOR
CG420-5A Pressure Gauge. Shows pressure applied. The **CG120-15 Gauge Mounting Adaptor** isn't included.

HYDRAULIC CONVERSION KIT

CG123 Kit. Now you can easily convert your 10-ton ram into a hydraulic jack for numerous lifting operations...including machinery leveling and moving. Includes **CG123-1** 3/4"-20 x 5 3/16" lifting screw with non-skid head, **CG123-2** 3" square base plate and (2) **CG123-3** cap screws.

CG123HY Hydraulic Jack. Includes **CG123** above and **CG122** pump and ram.

10-TON HYDRAULIC PULLER SETS

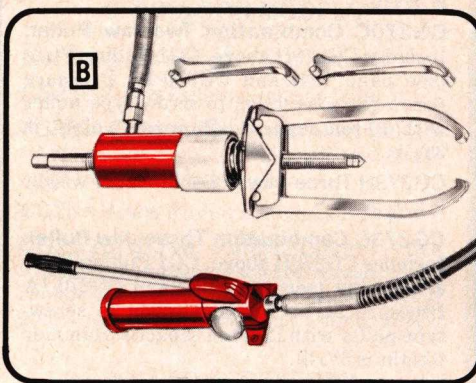


JAW-TYPE HYDRAULIC PULLER SETS

Comparative light weight and compact size allow easy handling and transport. Each set includes both large and small reversible jaws. Work screw is part of ram...see specifications above.

A **CG275HY.** Three-Jaw Hydraulic Puller.

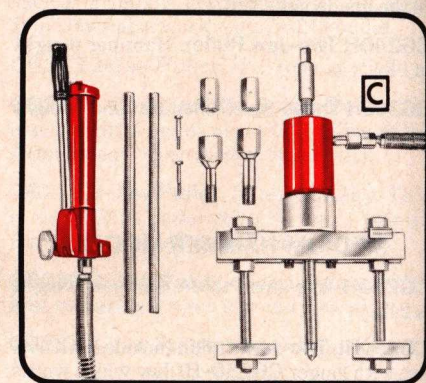
B **CG274HY.** Two-Jaw Hydraulic Puller.



BAR-TYPE HYDRAULIC PULLER SETS

For various small jobs in shops and industry. Bar yoke permits 10" wide pulls. Long and short rods can be connected for extra reach. Versatility can be increased by adding:

- **CJ84-5** thru **CJ84-18** Adaptors (page 207).
- **CJ951** or **CJ952** Bearing Separators (page 208).
- **CG250** or **CG270** Pullers (page 194). Screw directly into screw adaptors.



- **CG40C** Puller Set (page 205). Screw expanding rods into **CG150-12** Adaptor for blind hole pulls.

C **CG150HY Hydraulic Puller Set.** Includes puller plus **CG122** Pump and Ram Set. Ram can be reversed to use puller as a pusher.

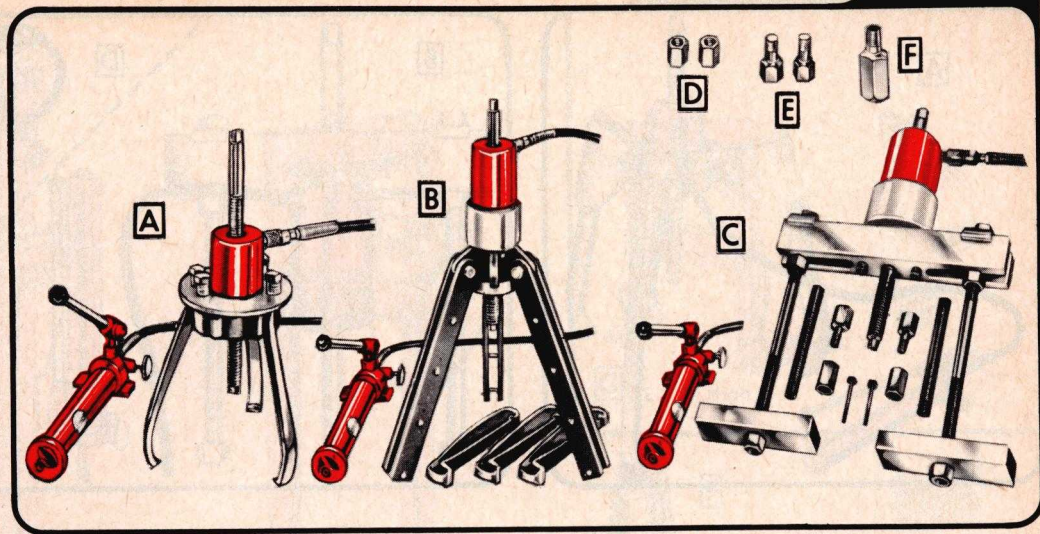
CG150 Basic Set. Above set less Pump and Ram Assembly.

Puller Number	Short Jaw			Long Jaw			Pump & Ram Set	Short Jaw	Long Jaw	Locking Plate	Spring	Yoke	Adaptor
	Outside Spread	Inside Spread	Max. Reach	Outside Spread	Inside Spread	Max. Reach							
A CG275HY 3-Jaw	0-8 1/2"	2 1/2-7 1/2"	5 1/2"	0-10"	3-8"	8 1/4"	CG122	CG270-3(3)	CG270-10(3)	CG270-5	CG270-6	CG273-15	CG270-16
B CG274HY 2-Jaw	0-8 1/2"	2 1/2-7 1/2"	5 1/2"	0-10"	3-8"	8 1/4"	CG122	CG270-3(2)	CG270-10(2)	CG270-5	CG270-6	CG270-15	CG270-16

Puller Number	Pump & Ram Set	Yoke	12" Side Rods (2)	8" Side Rods (2)	Rod Conn. Nuts (2)	End Blocks	Nuts (6)	Clip Washers (2)	Ram Adaptor	Hollow Hd. Screw (2)	Cap Screws (2)	Screw Adapt. 5/8"-18	Screw Adapt. 3/4"-16
C CG150HY	CG122	CG150-2	CG150-3	CG150-4	CG150-5	CG150-6	CG150-7	CG150-8	CG150-9	CG150-10	CG150-11	CG150-12	CG150-13

20-TON HYDRAULIC

Pullers



CAUTION: Always wear approved eye protection when operating pulling equipment. This is specially important when operating hydraulic power pullers. See page 190 for additional information and safety tips.

HYDRAULIC POWER UNIT

CG420A Pump and Ram Set. Ram is 6" long, 4" in diameter and has a 2" stroke. Pressure Screw is 20 1/2" long and has 1 1/8" thread. Set includes: **CG420-2A** Pump, **CG420-1A** Ram, **CG420-3-1** Hose and **CG420-4** Coupler.

HYDRAULIC ACCESSORIES

PRESSURE GAUGE and ADAPTOR CG420-5A Pressure Gauge. Shows pressure applied. **CG420-6 Gauge Mounting Adaptor** not included.

JACK CONVERSION KIT

CG423. Convert your existing Pump and Ram into a Hydraulic Jack with this kit which includes: **CG423-1** 1 1/8"-8x6" Center Lifting Screw with non-skid head, **CG423-2** 5" Square Steel Base Plate and (4) **CG423-3** Cap Screws.

HYDRAULIC JACK

CG423HY. Includes all the components of the CG420A Pump and Ram Set and CG423 Hydraulic Jack Conversion Kit above...to ably handle a variety of heavy lifting and moving jobs.

JAW-TYPE PULLERS

A CG400HYA Puller Set. Includes CG420A Pump and Ram Set and CG400 Combination Two- or Three-Jaw Puller.

CG400 Puller. Same as CG400HYA above, but doesn't include Pump and Ram.

CG343 Puller. Manually-operated version of CG400HYA above. Ram and pump are replaced by **CG343-1** 4" Plug and **CG300-1** Pressure Screw.

CG405HYA Puller Set. Includes CG420A Pump and Ram Set and CG405 Combination Two- or Three-Jaw Puller. Ideal for big jobs requiring longer reach.

CG405 Puller. Same as CG405HYA above, but doesn't include Pump and Ram.

CG348 Puller. Manually-operated version of CG405HYA above. Ram and pump are replaced by **CG343-1** 4" Plug and **CG305-8** Pressure Screw.

B CG425HYA Puller Set. For outside pulls of gears and pulleys up to 20". Includes CG420A Pump and Ram Set and CG425 Two- or Three-Jaw Combination Puller.

CG425 Puller. Same as CG425HYA above, but doesn't include Pump and Ram.

CG325 Puller. Manually-operated version of CG425HYA above, except the Pump and Ram, Washer Adaptor, Cap Screws and Ram Adaptor are not included. Does include **CG325-1** 1 1/8"-8x21 1/16" Pressure Screw. 25-ton capacity.

BAR-TYPE PULLERS

C CG450HYA Puller Set. Side rods threaded at both ends and can be joined to reach over 24". Blocks included for pulling spoke wheels. CG420A included.

CG450 Puller. Same as CG450HYA. Does not include Pump and Ram Set.

CG350 Puller. Manually-operated version of the CG450HYA. Does not include Pump and Ram Set.

SPECIAL ADAPTORS

Puller Adaptors for CG450. Female adaptors used when studs surround piece to be pulled. Male adaptors used when pulling tapped gear or wheel, and for pressing when tapped holes surround the work.

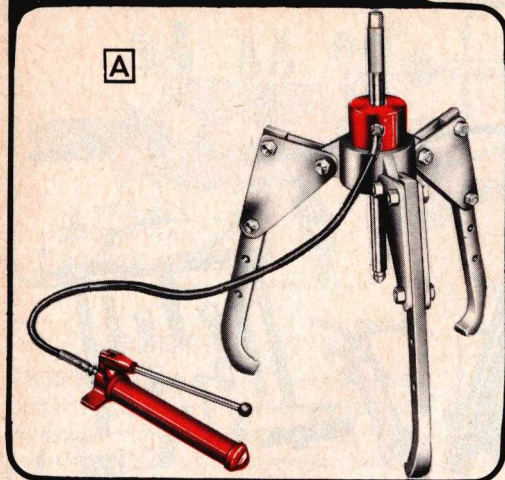
D Female **E Male**
(Two of each listed.)

CG455-9 5/8"-18	CG455-1 5/8"-18
CG455-10 3/4"-16	CG455-2 5/8"-11
CG455-11 1"-14	CG455-3 3/4"-16
CG455-12 1 1/8"-8	CG455-4 3/4"-10
CG455-13 1 1/8"-12	CG455-5 7/8"-9
CG455-14 1 1/4"-8	CG455-6 1"-14
CG455-15 1 1/4"-12	CG455-7 1"-8
CG455-16 1 1/2"-8	CG455-8 1 1/8"-12
CG455-17 1 1/2"-12	
CG455A Set of 18	CG455 Set of 16

F CG455-18 (5/8"-18) and **CG455-19** (7/8"-14) Pressure Screw Adaptors used for hook-ups when CG450 Puller is used as a pusher, resulting in ram screw performing pulling task.

Puller Number		Type	Capacity in Tons	Spread	Reach	Yoke	Jaws	Locking Plate	Spring	Adjust. Stud	Pressure Screw	4" Plug				
A	CG400HYA	Hydraulic Manual	20	13"	9 1/2"	CG400-2	CG300-3	CG400-5	CG400-6	CG400-7	—	—				
	CG343		20	13"	9 1/2"	CG400-2	CG300-3	CG400-5	CG400-6	CG400-7	*CG300-1	*CG343-1				
A	CG405HYA	Hydraulic Manual	20	15"	14"	CG400-2	CG305-9	CG400-5	CG400-6	CG400-7	—	—				
	CG348		20	15"	14"	CG400-2	CG305-9	CG400-5	CG400-6	CG400-7	*CG305-8	*CG343-1				
Puller Number		Type	Capacity in Tons	Spread	Reach	Yoke	Jaws	Side Arms	Arm Bolts	Arm Nuts	Washer Adaptor	Cap Screws	Ram Adaptor	Pressure Screw		
B	CG425HYA	Hydraulic Manual	20	20"	19"	CG325-2	CG325-3	CG325-4	CG325-5	CG325-6	CG425-7	CG425-8(2)	CG425-9	—		
	CG325		25	20"	19"	CG325-2	CG325-3	CG325-4	CG325-5	CG325-6	—	—	—	*CG325-1		
Puller Number	Type	Capacity in Tons	Spread	Reach	Yoke	Adaptor Blocks	Ram Adaptor	Cap Screws	Side Rods 18"	Side Rods 9"	Side Rod Conn. Nuts	Hex Nuts 7/8"	Clip Washer	Bearing Sep. Adapt.	Pressure Screw	
C	CG450HYA	Hydraulic	20	6-15"	6-24"	CG450-10	CG350-6(2)	CG425-9	CG450-11(2)	CG350-3(2)	CG350-4(2)	CG350-5(2)	CG350-7(6)	CG350-8	CG350-9	—
	CG350	Manual	50	6-15"	6-24"	*CG350-2	CG350-6(2)	—	CG450-12(2)	CG350-3(2)	CG350-4(2)	CG350-5(2)	CG350-7(6)	CG350-8	CG350-9	*CG350-1

*Addition of these parts will convert hydraulic pullers to manual applications.



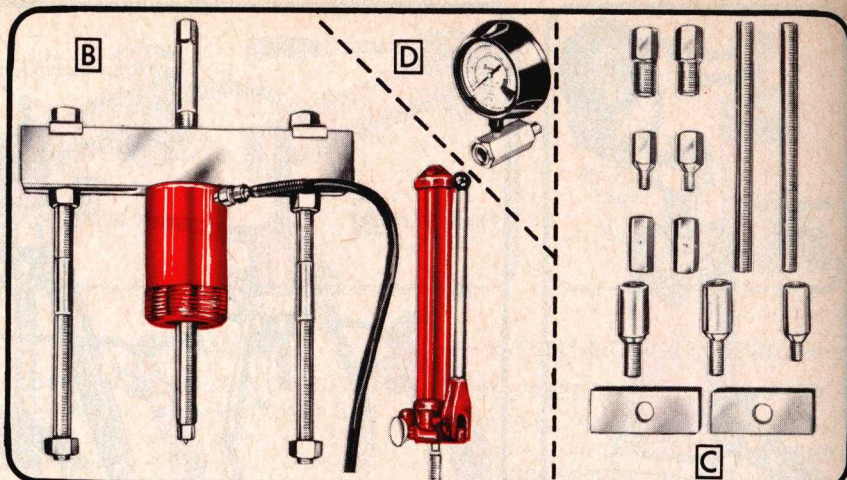
JAW-TYPE PULLER

A CG560HY Puller Set. Circular yoke allows attachment of two or three jaws. Jaws feature five 1" holes spaced so jaws can be adjusted in 5" increments. Ram has a 3" stroke and is positioned above the yoke and out of the way during pulling operations. See chart below for components and specifications.

HYDRAULIC ACCESSORIES

CG420-5A Pressure Gauge. Indicates pressure applied.

CG420-6A Pressure Gauge Adaptor. Connects pressure gauge to ram.



BAR-TYPE PULLERS

B, C, D CG559 Complete Bar-Type Set. Bar type construction permits pulls up to 24" wide. Ram has 3" stroke and automatically retracts when pressure is released. Set includes CG555 Basic Puller Set, CG420-5A Pressure Gauge with CG420-6 Adaptor and CG558 Accessory Set.

B CG555 Bar-Type Puller. Same as CG559 above, but it doesn't include either the Pressure Gauge and Adaptor at left or the Puller Accessory Set at right.

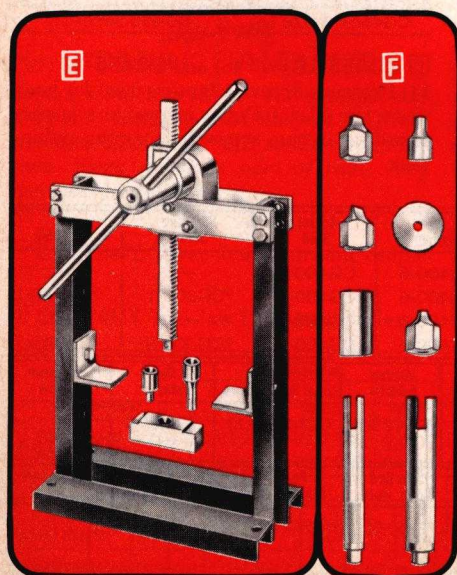
PULLER ACCESSORY SET

C CG558. Increases the versatility of your bar-type pullers at left...allows use with tapped gears and wheels.

Stock No.	Description	Qty.
CG550-4	18" Side Rods	2
CG550-5	Side Rod Connecting Nuts	2
CG550-6	3" x 1 1/4" x 8" End Blocks	2
CG550-9	Bearing Separator Adaptors	2
CG550-11	7/8"-14 Side Rod Adaptors	2
CG550-12	7/8"-14 Work Screw Adaptor	1
CG550-13	6 1/2" long, 1" dia. Bull Nose Adaptor	1
CG550-14	6 1/2" long, 1 1/2" dia. Bull Nose Adaptor	1

CAUTION: Always wear approved eye protection when operating pulling equipment. This is specially important when operating hydraulic powered pullers. See page 190 for additional information and safety tips.

Puller Number	Capacity in Tons	Spread	Reach	Comb. Yoke	Jaw	Side Plate	1" Hex Bolt	1"-14 Hex Nut	50-Ton Ram & Pres. Screw	Pump	Hose	Coupler Set			
A	CG560HY	50	44"	28"	CG560-2	CG560-3(3)	CG560-4(6)	CG560-5(9)	CG560-6(9)	CG520	CG420-2A	CG420-3-1	CG420-4		
Puller Number	Capacity in Tons	Spread	Yoke	24" Side Rods	Hex Nuts	Clip Washers	Cap Screws	50-Ton Ram & Pres. Screw	Pump	Hose	Coupler Set	Pressure Gauge	Gauge Adaptor	Accessory Set	
B	CG555	50	24"	CG550-2	CG550-3(2)	CG550-7	CG550-8(2)	CG550-10(2)	CG520	CG420-2A	CG420-3-1	CG420-4	—	—	
C	CG559	50	24"	CG550-2	CG550-3(2)	CG550-7	CG550-8(2)	CG550-10(2)	CG550	CG420-2A	CG420-3-1	CG420-4	CG420-5A	CG420-6	CG558



3-TON ARBOR PRESS

E CG100 Arbor Press. Frame made of 2" channel iron. Bottom rails have holes for bolting to workbench. Steel work support brackets are bolted in place on side rails. Gearing multiplies handle pressure up to 3 tons force. Set includes: Arbor Press, **CG100-14 Utility Punch**, **CG100-15 Work Block** and **CG100-16 Adaptor** to convert 1/2" drive to 5/16" round drive.

CG100 SPECIFICATIONS

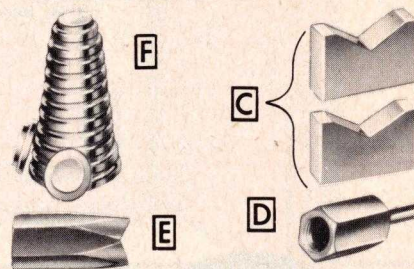
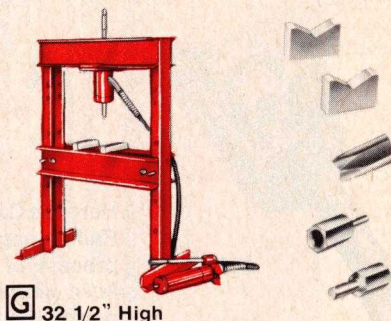
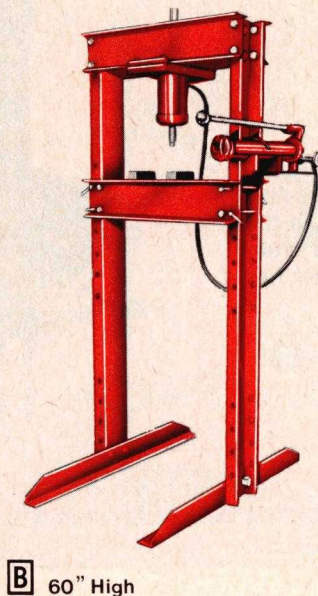
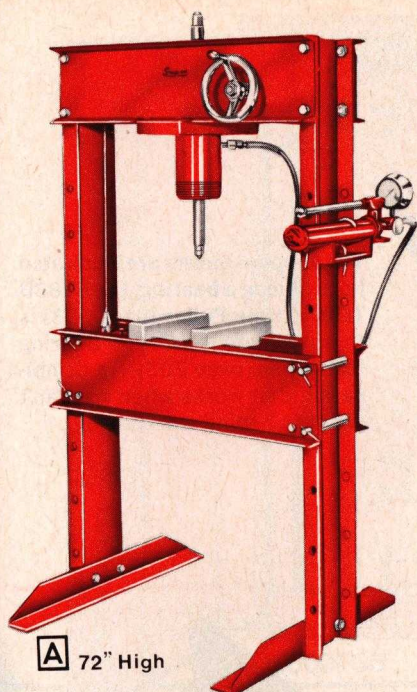
18" high x 11 1/8" wide.
11 1/8" x 6 1/8" base size.
12 3/4" vertical capacity.
9" width opening.
5" width between work brackets.
9" pressure shaft stroke (when utility punch is attached).

OPTIONAL ACCESSORIES

Adaptors from A57Q Bushing Driver Set (page 209) can be used on pressure shaft of CG100-16 Round Drive Adaptor. CJ951 Bearing Separator (page 203) fits between work support brackets.

ATTACHMENT SET

CG101-1. Rectifier Support
CG101-2. Housing Support
CG101-3. Diode Punch
CG101-4. Bearing Punch
CG101-5. Bearing Plate
CG101-6. Flat Driver
CG101-7. Square Driver (7/32")
CG101-8. Square Driver (9/32")



CAUTION: Always wear approved eye protection when operating pullers, presses and equipment of this nature.

These presses are ideal for handling a wide variety of pressing, bending, straightening and assembling jobs and would be a big asset to any garage or industrial shop.

Rams may be moved in any lateral position for various jobs. Two work blocks included with each unit slide on work rails

for fast positioning beneath ram. They are held in place by an extended boss at the bottom. Work rails may be raised or lowered in 7" increments on the 50-ton unit, 3" increments on the 20-ton unit and 4" increments on the 10-ton bench model. All models are available as complete sets and include the ram, pump, press frame and all the various needed adaptors.

50-TON PRESS SET

A CG570BHY Complete Set. Includes press frame, ram, pump, work blocks, plus:

C CG471-2 "V" Block (2).

D CG550-13 Bull Nose Adaptor, 1"
CG550-14 Bull Nose Adaptor, 1 1/2"

F CG471A Step Plate Set (see below for individual plates).

F CG471A Step Plate Set. Designed to easily remove or replace bearings from housings. This set includes the 13 assorted step

20-TON PRESS SET

B CG470BHY Complete Set. Includes press frame, ram, pump, work blocks, plus:

C CG471-2 "V" Block (2).

D CG471-3 Bull Nose Adaptor, 1/2"
CG471-4 Bull Nose Adaptor, 3/4"

E CG471-1 Pressure Screw "V" Adaptor.

F CG471A Step Plate Set (see below for individual plates).

10-TON BENCH PRESS SET

G CG170HY Complete Set. Same design as larger floor models at left, but intended to be mounted on a bench. Includes ram, pump, frame, plus all the extras listed at the bottom of the page. *Does not include the step plate set.*

Delivers up to 10 tons of power to handle a variety of jobs. Frame is adjustable to a maximum working height of 24" and can be set in any of 6 working positions.

plates listed below. The step plates are standard items with the 50-ton and 20-ton sets above.

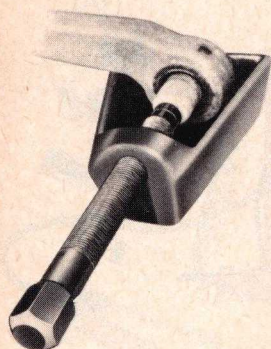
CG471-5	1 5/8" x 1 1/4"	CG471-8	2 1/16" x 1 5/8"	CG471-11	2 7/16" x 2"	CG471-14	2 7/8" x 2 3/8"	CG471-16	3 1/4" x 2 3/4"
CG471-6	1 3/4" x 1 3/8"	CG471-9	2 3/16" x 1 3/4"	CG471-12	2 5/8" x 2 1/8"	CG471-15	3" x 2 1/2"	CG471-17	3 1/2" x 3"
CG471-7	1 7/8" x 1 1/2"	CG471-10	2 5/16" x 1 7/8"	CG471-13	2 3/4" x 2 1/4"				

20- AND 50-TON FLOOR PRESSES

Press Number	Press Frame	Work Block (2)	Ram Back Plate	Back Plate Gibs (2)	Gib Cap Screws (4)	Pump Bracket	Back Plate Screw (4)	Pump	Ram & Screw	Hose	Coupler Set	Pressure Gauge	Gauge Adaptor		
A	CG570BHY	CG570	CG570A12	CG570A13	CG570A14	CG570A15	CG570A16	CG570A17	CG420-2A	CG520	CG420-3-1	CG420-4	CG420-5A	CG420-6	
B	CG470BHY	CG470	CG470-12	CG470-13	CG470-14	CG470-15	CG470-16	CG470-17	CG420-2A	CG420-1A	CG420-3-1	CG420-4	—	—	
Press Number		Capacity in Tons		Overall Height		Base Area		Width of Work Area		Side Beam Channel Iron		Head Rail Channel Iron		Work Rail Channel Iron	
CG570BHY		50		6 ft.		3 x 3 1/2 ft.		3 ft.		8" wide		10" wide		10" wide	
CG470BHY		20		5 ft.		2 x 3 ft.		2 ft.		5" wide		5" wide		5" wide	

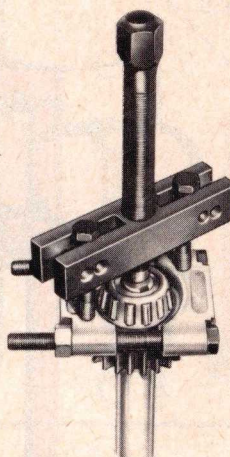
10-TON BENCH PRESS

Press Number	Frame	Work Blocks (2)	"V" Blocks (2)	Pres. Screw "V" Adaptor	3/8" Bull Nose Adaptor	1/2" Bull Nose Adaptor	Pump/Ram Assembly	Min. Work Distance	Max. Work Distance
G CG170HY	Included	CG170-9	CG170-14	CG170-5	CG170-16	CG170-17	CG122	4"	38 1/2"



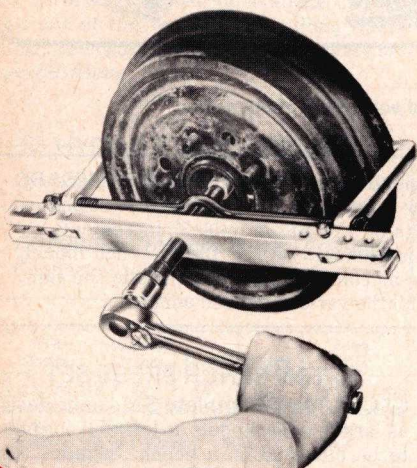
PITMAN ARM PULL

Here the CJ119 Pitman Arm Puller (page 203) is in the process of pulling a stubborn pitman arm that has rusted in place.



BEARING PULL

Two Snap-on pullers are illustrated here pulling a bearing. the CJ83B Tapped Hole Puller (page 203) is threaded into the CJ950 Bearing Separator (page 203)...a combination that works when you can't get jaws behind the bearing.



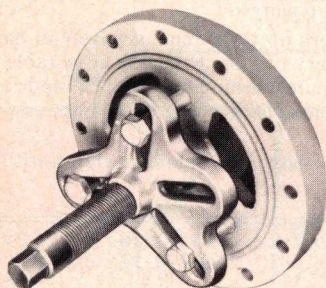
BRAKE DRUM PULL

The CJ100A Brake Drum Puller (page 203) is shown being used with a Snap-on ratchet to simply and quickly remove a brake drum.



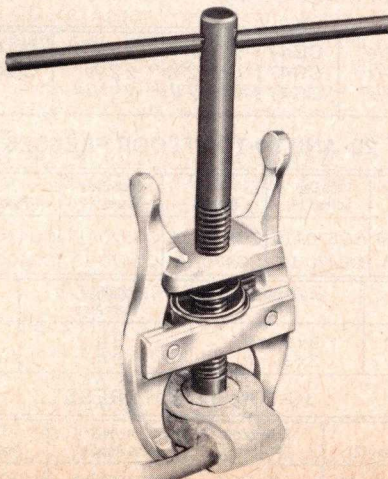
SMALL BEARING PULL

Illustrated here is the A78 Pilot Bearing Puller (page 208) using both its straddle yoke and pulling jaws to extract the small bearing from a generator.



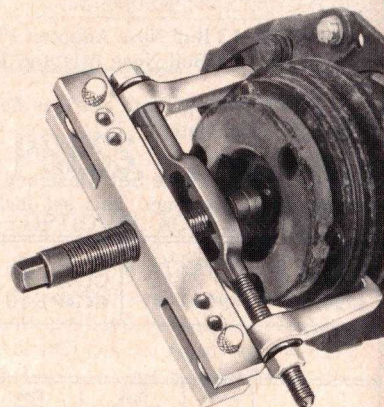
HARMONIC BALANCER PULL

Here components of the CJ98D Bolt-Grip Puller Set (page 202) is illustrated pulling a harmonic balancer...just one of the many applications for this versatile set.



BATTERY CABLE PULL

Shown below is the CJ92 Battery Cable Puller (page 208) extracting a battery cable clamp...with no damage to the battery post.

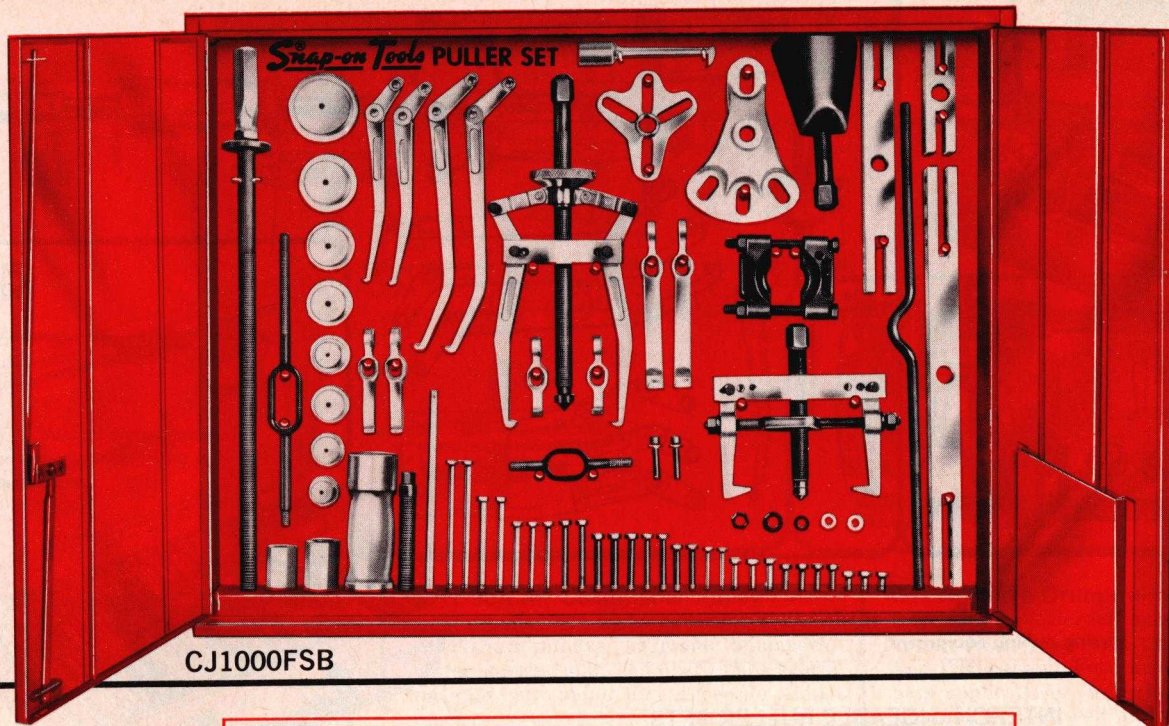


PULLEY PULL

This is the CJ80A Air Conditioner Pulley Puller (page 203) performing its intended application. Note how the side bolts lock the jaws safely into position.

BAR-TYPE SET

Pullers



CAUTION: Always wear approved eye protection when using pulling equipment.

CJ1000F MAKES 40 PULLERS AT LEFT...AND MORE!

Only 60 basic components...and you can assemble not only the 40 pullers silhouetted at left, but many, many more. There is no need to buy the various pullers this set can make individually...you can have them all just by interchanging components in this far less expensive means to meet most of your pulling needs.

CJ1000FSB Complete Interchangeable Puller Set. Consists of all the parts below, the heavy duty **VE102D** Wall Display Board (3/4" thick, 24" high, 32" wide, 2" wide base) and the **KRA270A** Wall Cabinet (6" thick, 24 3/4" high, 32" wide). White tool outlines and black identification immediately indicate misplaced parts. This set is ideal for pulling timing gears, pulleys, brake drums, flanged and tapered axle shafts, pitman arms, steering wheels, grease retainers, carrier side bearings, gears of all types, distributors, bearings and bearing races. It also has many industrial uses...pulling small gears, bearings, seals and pulleys. *Both pressure screw and slide hammer power are provided.*

CJ1000FS Interchangeable Puller Set. Same as CJ1000FSB above, but does not include the KRA270A Wall Cabinet.

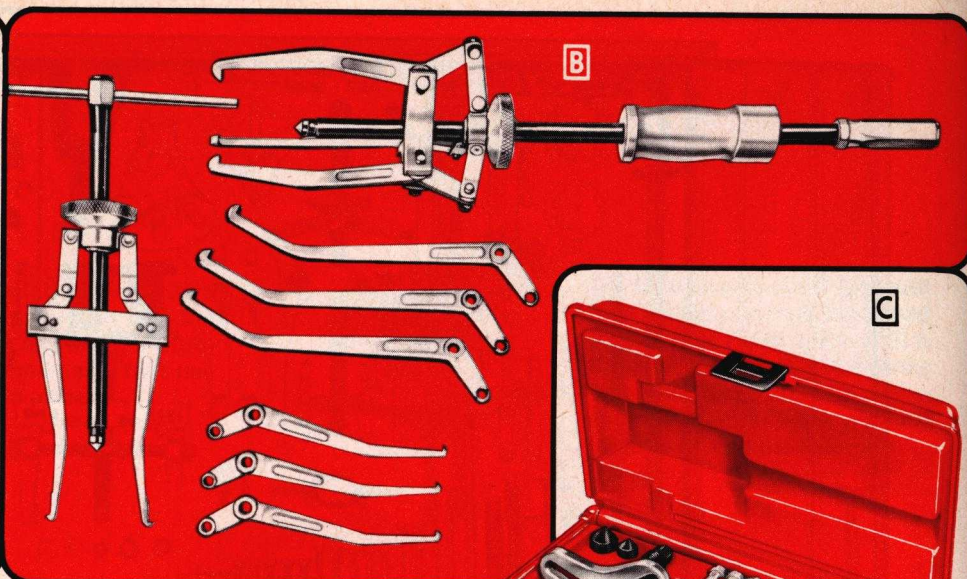
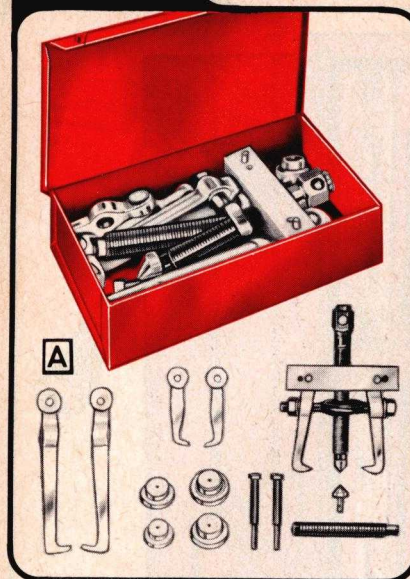
CJ1000F Set. Tools only.

SET CONTENTS

Part No.	Description	Part No.	Description	Part No.	Description
CJ66-15-3	Centering Adaptor	CJ97-4	3/4"-16 Axle Shaft Adaptor	CJ118-1	Yoke
CJ66-19	Bearing Hook	CJ97-5	3/4"-16, 7/8"-14 Axle Shaft Adaptor	CJ118-2	Clamp Bolt (Length 12 13/64")
CJ81-2A	Side Bearing Puller Jaw (2)	CJ100-1	Puller Yoke	CJ123-1	Slotted Yoke
CJ81B1	1 1/2"-1.120" Adaptor	CJ100A2	Clamp Bolt (Length 19")	CJ282-1	6" Jaw (2)
CJ81B2	1 5/8"-1.245" Adaptor	CJ105-3	Puller Screw	CJ950	Bearing Separator
CJ81D1	1 3/4"-1.125" Adaptor	CJ105-4A	Slide Hammer Shaft	ESD1053	Clamp Nut (2)
CJ81D2	1 11/32"-1.937" Adaptor	CJ105-5	6 1/4" Internal Jaw (2)	ME3A21	Jaw Locking Screw (2)
CJ85A	Side Bearing Puller	CJ105-6	6 1/4" External Jaw (2)	ME3A40	8 mm-1.25 x 45 mm Bolt (3)
CJ85-4	Clamp Washer (2)	CJ105-7	9" Jaw (2)	ME3A41	8 mm-1.25 x 90 mm Bolt (2)
CJ86-1	Puller Yoke	CJ105A9	Two-Way Jaw Control	ME3A42	8 mm-1.25 x 65 mm Bolt (2)
CJ86-4	Clamp Bolt (Length 5 1/8")	CJ105-10	Short Pin (2)	ME3A43	5/16"-18 Bolt (2)
CJ87-1	3" Jaw (2)	CJ105-11	Long Pin (6)	ME5A79	Washer for 8 mm Bolt (3)
CJ97-3	Slide Hammer (3 3/4 lb.)	CJ105-12	Handle Cross Bar		

Pullers

PULLER SETS



CAUTION: Always wear approved eye protection when using pulling equipment.

INTERCHANGEABLE PULLER SETS

BAR-TYPE SET

A CJ282BB Interchangeable Bar-Type Puller Set. Assemble any of four different pullers with this set... at less than half the cost of four complete tools. This small but extremely versatile set includes two pressure screws and three sets of jaws including a set of 6" jaws. The set will handle a variety of pulling jobs such as carrier side bearings, timing gears and pitman arms. Add the **CJ100-1 Yoke** and **CJ100A2 Clamp Bolt** and you'll also have the **CJ100A Brake Drum Puller** (page 203). Tools are included in **KRA40 Metal Box** (9½" long, 5½" wide and 2" deep). See chart below for set components.

CJ282B Set. Tools only in plastic tray.

JAW-TYPE SET

B CJ105A Interchangeable Two- and Three-Jaw Puller Set. Two-jaw or three-jaw applications... slide hammer or pressure screw power. Ideal for pulling gears, retainers, bearings, bearing races and bushings. Two pin locations on each yoke. Control arms hold jaws tightly in place, yet take little or no strain in pulling operation. Separate two- and three-way yokes and three sets of jaws... small, medium and large. Slide hammer screw can be tightened with cross bar or 1" wrench. As many as 12 different pullers can be assembled, and because the medium and large jaws are reversible, as many as 20 different pullers are possible with a large variety of applications. See chart below for set components.

BOLT-GRIP SET

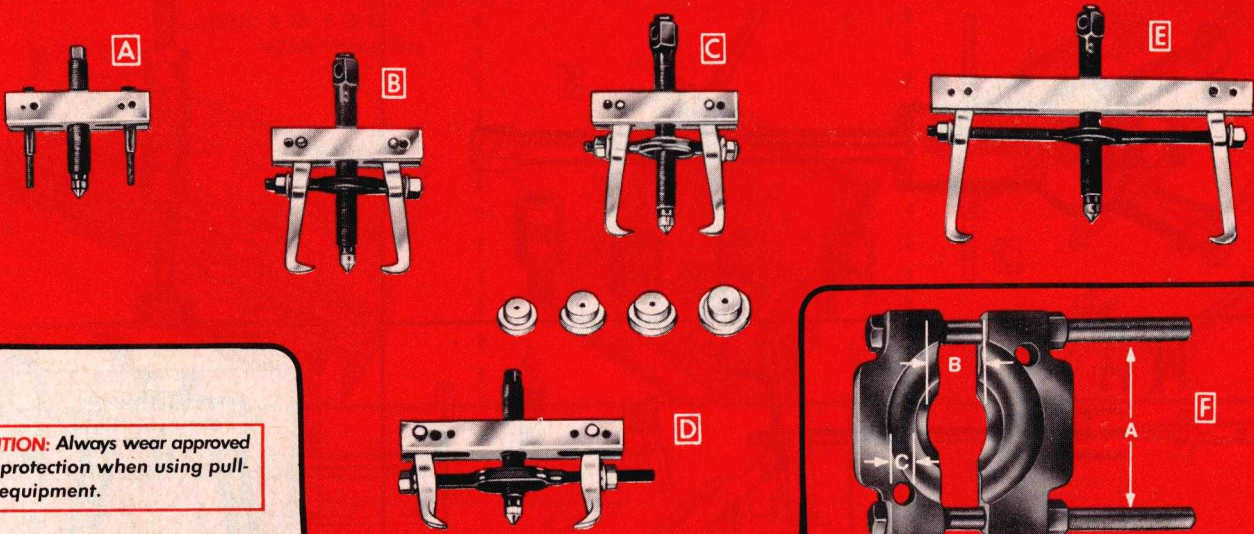
C CJ98D. Includes a 4-way slotted yoke for 2- or 3-way pulls. Also includes standard and metric bolts to remove harmonic balancers, gear pulleys, steering wheels, crankshaft pulleys, etc. Will also service lawnmowers and outboard motors with tapped holes in their flywheels, gears or pulleys. Set is packaged in the **PB19 Plastic Case** which includes embossed part numbers and a fold-down carrying handle. Measures 12½" x 8¼" x 4½". See chart below for set components.

PARTS COMPRISING ABOVE PULLER SETS

Part No.	Description	A	B	C	Part No.	Description	A	B	C
CJ66-15-3	Centering Adaptor	1	2	1	CJ105-6	Medium External Jaw	...	3	...
CJ81-2A	Side Bearing Puller Jaw	2	...	...	CJ105-7	Large External Jaw	...	3	...
CJ81B1	Adaptor (1½"-1.120")	1	...	...	CJ105-10	Short Jaw-to-Control Pin	...	5	...
CJ81B2	Adaptor (1⅝"-1.245")	1	...	...	CJ105-11	Long Jaw-to-Yoke Pin	2	5	...
CJ81D1	Corvair Adaptor	1	...	...	CJ105-12	Handle Cross Bar	...	1	...
CJ81D2	Falcon Adaptor	1	...	...	CJ282-1	6" Jaw	2	...	...
CJ83-2	Pressure Screw (¾"-16x6⅛x1/16")	1	...	...	ESD504	Stud (⅜"-16x1")	2	...	3
CJ83-3	Pressure Screw (¾"-16x5")	1	...	1	ESD1053	Clamp Nut	2	...	...
CJ84-16	Centering Adaptor	1	...	1	ME3A6A	Bolt (⅜"-16NCx2")	...	...	3
CJ85-4	Clamp Washer	2	...	...	ME3A7A	Bolt (⅜"-16NCx4½")	...	...	2
CJ86-1	Puller Yoke	1	1	...	ME3A8A	Bolt (¼"-28NFx2½")	...	...	2
CJ86-4	Clamp Bolt (5⅛" long)	1	...	...	ME3A9A	Bolt (⅝"-18NCx3½")	...	...	3
CJ87-1	3" Jaw	2	...	...	ME3A10A	Bolt (⅝"-24NFx3")	...	...	2
CJ97-3	Slide Hammer (3¾ lb.)	...	1	...	ME3A15A	Bolt (⅜"-24NFx1½")	...	...	3
CJ98-1	Puller Yoke	...	...	1	ME3A40	Bolt (8 mm-1.25x45 mm)	...	...	3
CJ105-1	Three-Way Yoke	...	1	...	ME3A41	Bolt (8 mm-1.25x90 mm)	...	...	2
CJ105-3	Pressure Screw (¾"-16x13")	...	1	...	ME3A42	Bolt (8 mm-1.25x65 mm)	...	...	2
CJ105A8	Three-Way Jaw Control	...	1	...	ME3A43	Bolt (⅝"-18UNC-2A)	...	...	2
CJ105A9	Two-Way Jaw Control	...	1	...	ME3A44	Stud (⅜"-16x3")	2	...	3
CJ105-4A	Slide Screw (¾"-16x22½")	...	1	...	ME5A54	Washer for ⅝" Bolt	...	...	3
CJ105-5	Small Internal Jaw	...	3	...	ME5A55	Washer for ¼" Bolt	...	...	2
					ME5A79	Washer for 8 mm Bolt	...	...	3

BAR-TYPE & BEARING SEPARATORS

Pullers



CAUTION: Always wear approved eye protection when using pulling equipment.

A CJ83B Tapped Hole Puller. Ideal for close quarter work. Studs adapt for most timing gears and also fit CJ950 Bearing Separator at lower right.

CJ121 Crankshaft Pulley Puller. Same design as CJ83B above. For use on John Deere tractors. Puller includes four pairs of various size screws for tapped hole pulling.

B CJ82B Pitman Arm Puller. Designed for many pitman arm applications but will also handle a wide variety of other jobs. Clamp bolt locks puller on job...freeing hands.

C CJ81D Carrier Side Bearing Puller. Pulls bearings from inner race without damaging them. Narrow jaws slip into housing grooves in back of bearing and let jaws seat and pull from inner race. Jaws are locked on bearing by clamp bolt. Four adaptors included to handle many side bearing applications.

D CJ80A Air Conditioner Pulley Puller. Also removes alternator, generator, lower crankshaft pulleys, harmonic balancers, power steering units and fiber timing gears. Includes extra pair of longer jaws for added reach.

CJ85A Truck Side Bearing Puller. Similar in appearance and function to CJ81D at lower left, but bigger for handling truck bearings. Four adaptors included to service most truck bearings.

E CJ118 General Purpose Gear Puller. Intermediate size puller is designed to cover the ranges between the CJ85A above and CJ100A below. Clamp bolt locks jaws on the job.

CJ100A Brake Drum Puller. Same design as CJ118 above, but bigger. Removes frozen brake drums on Ford and G.M. products with flange-type axles. Lock jaws on outer rim of drum, center pressure screw on axle and apply pressure. Clamp bolt locks jaws on drum.

CJ116 Brake Drum Puller. Same design as CJ100A at lower left except with longer clamp bolt, jaws and pressure screw. For 1969-current Ford heavy-duty brakes plus applications on Torino, Lincoln and Thunderbird as well as farm machinery maintenance. Lock jaws on outer rim of drum, center pressure screw on axle and apply pressure.

F BEARING SEPARATORS

For separating and pulling such items as double bearings and close fitting gears. Use with 2-Jaw or slotted yoke pullers.

CJ949. Use with small pullers or 5/16"-18 studs.

CJ950. Use with CJ83B above or CG250A (p. 194) pullers or with 3/8"-16 studs.

CJ951. Use with CJ84C (p. 207) or CG270A (p. 194) pullers or with 5/8"-18 studs.

CJ952. Use with CJ84C (p. 207) or CG300 (p. 194) pullers or with 5/8"-18 studs.

CJ953. Use with CJ840C (p. 207) or CG305 (p. 194) pullers or with 3/4"-16 studs.

Stock No.	A	B (max.)	B (min.)	C
CJ949	1 11/16"	1 1/8"	1/4"	5/16"-18
CJ950	2 3/8"	2 3/8"	3/8"	3/8"-16
CJ951	4 3/8"	4 1/2"	5/8"	5/8"-18
CJ952	5 7/8"	6 1/8"	1 1/4"	5/8"-18
CJ953	8 3/8"	8 3/4"	1 1/4"	3/4"-16

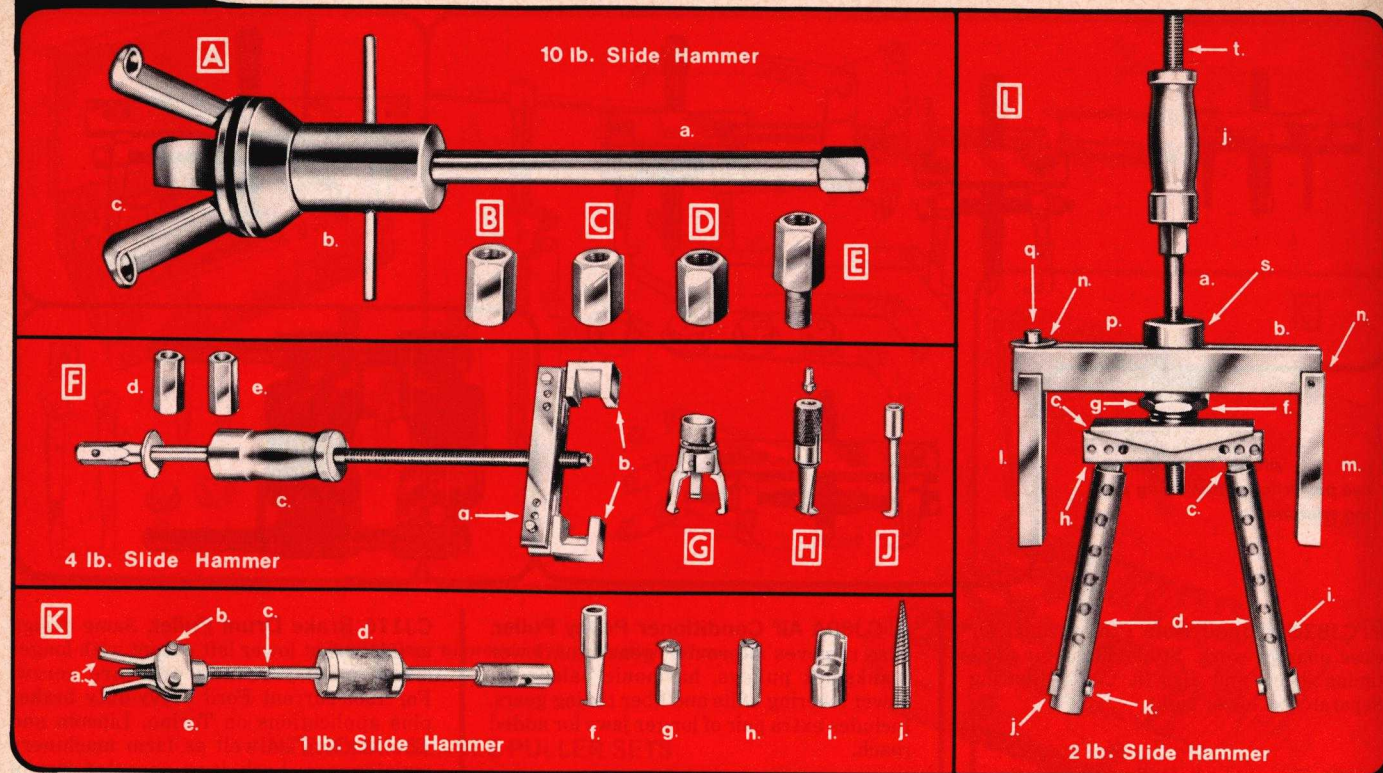
CJ9500 Set. Includes CJ950, 951 and 952 above.

SPECIFICATIONS and PARTS for ABOVE PULLERS

Puller No.	Clamp Bolt Size	Pressure Screw Size	Jaw Reach	Jaw Spread			
				1	2	3	4
A CJ83B	—	3/4"-16 x 5"	—	2 1/4"	3"	—	—
CJ121	—	—	—	2 1/16"	—	—	—
B CJ82B	7/16"-20 x 5 1/8"	3/4"-16 x 4 1/2"	2 1/4"	2 5/8"	3 3/8"	—	—
C CJ81D	7/16"-20 x 5 1/8"	3/4"-16 x 4 1/2"	1 5/8"	2 5/8"	3 3/8"	—	—
CJ85A	7/16"-20 x 8 1/16"	3/4"-16 x 4 1/2"	1 3/4"	3 1/2"	4 1/2"	5 1/2"	—
D CJ80A	7/16"-20 x 8 1/16"	3/4"-16 x 5"	1 3/8" 1 5/8"	3"	4"	5"	—
E CJ118	7/16"-20 x 12"	3/4"-16 x 4 1/2"	1 3/4"	7 1/4"	8 1/2"	9 3/4"	—
CJ100A	7/16"-20 x 19"	3/4"-16 x 4 1/2"	4 3/8"	10 5/8"	12 3/8"	14 1/8"	15 7/8"
CJ116	7/16"-20 x 19"	3/4"-16 x 13"	8 1/2"	10 5/8"	12 3/8"	14 1/8"	15 7/8"

Puller No.	Jaws(2)	Yoke	Center Adaptor	Jaw Pin(2)	Clamp Washer(2)	Clamp Nut(2)	Clamp Bolt	Pressure Screw	Stud
A CJ83B	—	CJ86-1	—	—	—	—	—	CJ83-3	ESD504
• CJ121	—	CJ121-1	—	—	—	—	—	CJ121-2	ME3A36
B CJ82B	CJ81-2A	CJ86-1	CJ66-15-3	CJ105-11	CJ85-4	ESD1053	CJ86-4	CJ83-2	—
†C CJ81D	CJ81-2A	CJ86-1	CJ66-15-3	CJ105-11	CJ85-4	ESD1053	CJ86-4	CJ83-2	—
▲ CJ85A	CJ85-2	CJ85-1	CJ66-15-3	CJ105-11	CJ85-4	ESD1053	CJ85-3	CJ83-2	—
D CJ80A	CJ87-1	CJ85-1	CJ66-15-3	CJ105-11	CJ85-4	ESD1053	CJ85-3	CJ83-3	—
	CJ81-2A	—	—	—	—	—	—	—	—
E CJ118	CJ85-2	CJ118-1	CJ66-15-3	CJ105-11	CJ85-4	ESD1053	CJ118-2	CJ83-2	—
CJ100A	CJ282-1	CJ100-1	CJ84-16	CJ105-11	CJ85-4	ESD1053	CJ100A2	CJ83-2	—
CJ116	CJ116-1	CJ100-1	CJ84-16	CJ105-11	CJ85-4	ESD1053	CJ100A2	CJ105-3	—

• Includes studs: ME3A37, ME3A38, ME3A39. †Includes adaptors: CJ81B1, CJ81B2, CJ81D1, CJ81D2. ▲Includes adaptors: CJ85-5, CJ85-6, CJ85-7, CJ85-8.



CAUTION: Always wear approved eye protection when using pulling equipment.

BOLT-ON TYPE AXLE SHAFT PULLER

A 4567SH. Breaks loose axles on Ford and GM cars and all cars and light trucks with flange-type axles. Services almost all cars with 4 optional adaptors. Rugged body with 3 removable jaws. 10 lb. hammer. 1/4"-12x23 1/2" slide shaft with 1 1/2" hex. *See below for set contents.*

OPTIONAL ADAPTORS for 4567SH

- B CG4567N1.** One end has 1 1/4"-12 thread to fit puller shaft; other end is 3/4"-16 to fit axle.
- C CG4567N2.** One end has 1 1/4"-12 thread to fit puller shaft; other end is 7/8"-14.
- D CG4567N3.** One end has 1 1/4"-12 thread to fit puller shaft; other end is 1"-14 to fit axle.
- E CG4567N4.** Has an internal thread of 1 1/4"-12 to fit puller shaft and an external thread of 1"-14 to fit competitive wheel puller yokes.

GRIPPING-JAW TYPE AXLE SHAFT PULLER

F CJ97C. Pulls flange-type axles on all late model Ford, GM and other products without bolting. 24 1/2" long, 10 1/2 lbs. Owners of CJ66A, CG270H or CG273H can convert to this puller by adding the CJ85-1 Yoke, two CJ105-11 Pins and pair of CJ97-1X Jaws. *See below for set contents.*

PULLER HEADS

The following 3 puller heads have 3/4"-16 threads. They may be used with CJ97-3 and CJ105-4 Slide Hammer and Shaft from CJ97C on this page or the CG66-2 and CG270-8A Slide Hammer and Shaft (p. 192).

G CJ66-22 Axle/Bearing Puller Head. Pulls axle bearing and grease retainer in one operation on Chevrolet cars and trucks. Use as shown for axle, in reverse for bearing. Reach 1/2" jaw spread inside 1 5/8" to 3" jaw spread outside 1" to 3"

H CJ66-25 Grease Retainer Puller Head. Insert thru grease retainer and expand behind it. Jaw spread 2 13/16", minimum diameter it can work thru 1 1/16", length 5 3/32"

J CJ66-19 Bearing Hook Puller Head. Pulls pilot bearings as well as grease retainers and bearing races. Minimum diameter it can work thru 1 1/16", length 5 7/8"

SMALL SLIDE HAMMER PULLER SET

K CJ93B. Removes small bushings, seals, bearings, bronze or oilite bushings and pressed-in bolts. Includes expandable grease retainer adaptor, bearing hook adaptor, body dent adaptor and two stud puller heads. *See below for set contents.*

WET SLEEVE PULLER

L CG80. Removes wet cylinder sleeves in Case, Cummins and Detroit products...plus any trucks, heavy construction and farm equipment with cylinder diameter 3-6" Reach 7-12" Adjustable bridge fits around studs in block. *See below for set contents.*

COMPONENTS for ABOVE PULLERS

4567SH Components			
a. CG4567N Slide Shaft	g. CG80-7 Handwheel	s. CG80-20 Sliding Guide	g. CJ93-5 Bearing Hook
b. CG4567-O Slide Hammer (10 lbs.)	h. CG80-8 Bearing	t. CG250-8A Slide Hammer Screw	h. CJ93-6A Body Dent Adapt.
c. CG4567Q Base Hsg. & 3-Jaw Assembly	i. CG80-9 Yoke Pin (2)	u. CG250-9 Slide Hammer (2 lbs.)	i. CJ93-8 3/8"-24 Stud Adapt.
CG80 Components	j. CG80-10 Arm Pin (2)		j. CJ107-1A Tapered Screw
a. CG80-1 Pressure Screw	k. CG80-11 Insert (2)	CJ93B Components	
b. CG80-2 Yoke	l. CG80-12 5/16" Bolt (2)	a. A78-3 Large Jaw (2)	CJ97C Components
c. CG80-3 Arm (2)	m. CG80-13 Adj. Bridge Leg	A78-4 Small Jaw (2)	a. CJ85-1 3/4"-16 Yoke
d. CG80-4 Jaw (2)	n. CG80-14 Sta. Bridge Leg	b. A78-6B Jaw Pin (2)	b. CJ97-1X Pair of Jaws
e. CG80-5 Saddle	p. CG80-15 Spring Pin	c. CJ93-1 Slide Screw	c. CJ97-3 Slide Hammer (4 lbs.)
f. CG80-6 Spring	q. CG80-16 Cross Piece (2)	d. CJ93-2 Slide Hammer (1 lb.)	d. CJ97-4A Chrysler Axle Shaft Adaptor
	r. CG80-17 3/8" Cap Screw	e. CJ93-3-1 Jaw Holder	e. CJ97-5 Rambler Axle Shaft Adaptor
	s. CG80-18 Washer	f. CJ93-4 Grease Ret. Adapt.	
	t. CG80-19 Spring		

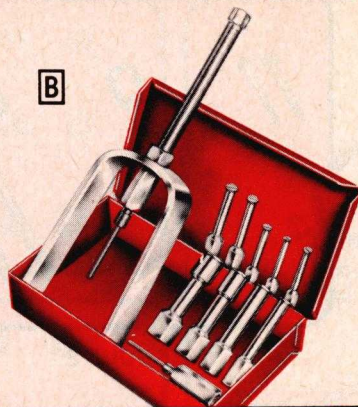
BLIND HOLE BEARING

Pullers

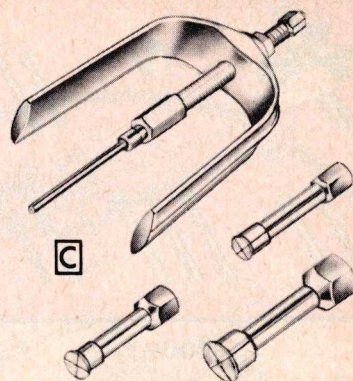
INCLUDES: 2 lb. & 4 lb.
Slide Hammers



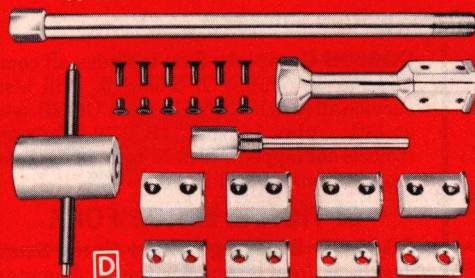
B



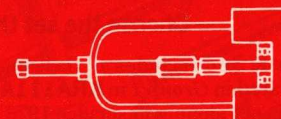
C



10 lb. Slide Hammer



6 lb. Slide Hammer



Yoke & Pressure Screw



Slide Hammer

Remove blind hole bearings, bushings, sleeves, etc. safely and quickly. These special pullers are designed to work in blind hole areas with inside diameters ranging from 1/4" to 7" where conventional pullers cannot reach.

Simple three-step operation:

1. Insert collet with matching inside diameter through the bearing or sleeve to be pulled.
2. Thread matching expanding rod into collet and secure collet behind bearing or sleeve.
3. Attach bridge yoke, bar-type or slide hammer puller to provide pulling power.

A CG2545AB PULLER SET

Combines B (CG40C) and C (CG45) Sets pictured above plus slide screws and slide hammers for each set...in KRA109 Metal Box.

Stock No.	Description	Stock No.	Description
CG40C	Set, 1/4" thru 1 1/8"	CG45	Set, 1" thru 1 3/4"
CG250-8A	Slide Screw 5/8"-18	CJ105-4A	Slide Screw 3/4"-10 x 22 1/2"
CG250-9	Slide Hammer (2 lb.)	CJ97-3	Slide Hammer (4 lb.)

B CG40CB PULLER SET

Nine collets ranging from 1/4" to 1 1/8". The 5/8" size can be used on Cummins and other diesel engines. For slide hammer power use CG250-9 Hammer and CG250-8A Slide Screw (5/8"-18 thread). Includes KRA40 Metal Box.

CG40C Set. Above set without KRA40 Metal Box.

Stock No.	Description	Stock No.	Description
CG40-1	Press. Scr. 5/8"-18	CG41-14	1/4" to 5/16" Collet
CG40-2	Nut	CG40-9	7/16" to 9/16" Collet
CG40-3	Yoke 3 1/4" spread	CG40-15	1/2" to 5/8" Collet
CG40-4	Expanding Rod	CG40A6	5/8" to 3/4" Collet
CG41-11	Expanding Rod	CG40-7	3/4" to 7/8" Collet
CG41-12	5/16" to 3/8" Collet	CG40-8	7/8" to 1" Collet
CG41-13	3/8" to 7/16" Collet	CG40A10	1" to 1 1/8" Collet

CG40-11 Optional Collet. Pull needle bearings on Leece-Neville alternators. Includes larger diameter drilled hole and oversize steel ball. Range of 43/64" to 53/64".

CG40-12 Optional Collet. Pull pilot bushings on late model Ford manual transmissions. Range of 15 mm to 18 mm.

CAUTION: Always wear approved eye protection when using pulling equipment.

C CG45 PULLER SET

Removes larger bearings. For slide hammer power use CJ97-3 4 lb. Hammer and CJ105-4A Slide Screw (3/4"-10 x 22 1/2").

Stock No.	Description	Stock No.	Description
CG270-1A	Pressure Screw 3/4"-10	CG45-15	1" to 1 1/4" Collet
CG45-2	Nut	CG45-6	1 1/4" to 1 1/2" Collet
CG45-3	Yoke 5" Spread	CG45-7	1 1/2" to 1 3/4" Collet
CG45-4	Expanding Rod		

D CG47 HEAVY-DUTY PULLER SET

Stock No.	Description	Stock No.	Description
CG47-201	Expanding Rod	CG4567N	Slide Screw 1 1/4"-12
CG47-202	Master Collet	CG4567-O	Slide Hammer (10 lbs.)

CG47-203	3" to 3 1/2" Collet Pad (3 required)	} one each shown
CG47-204	3 1/2" to 4" Collet Pad (3 required)	
CG47-205	4" to 4 1/2" Collet Pad (3 required)	
CG47-206	4 1/2" to 5" Collet Pad (3 required)	
CG47-207	5" to 5 1/2" Collet Pad (3 required)	
CG47-208	5 1/2" to 6" Collet Pad (3 required)	
CG47-209	6" to 6 1/2" Collet Pad (3 required)	
CG47-210	6 1/2" to 7" Collet Pad (3 required)	
CG47-211	Set of 2 Flat Head Cap Screws (3 sets required)	
CG47-212	Set of 2 Flat Head Cap Screws (3 sets required)	

CG47-420 Optional Hydraulic Adaptor. Attaches CG47 Puller above to CG450HYA Hydraulic Puller (page 197).

E CG46 PULLER SET

For large size blind hole bearings. Adaptable for Torrington needle bearings or heavy duty bearings from live center lathes and conveyor belts.

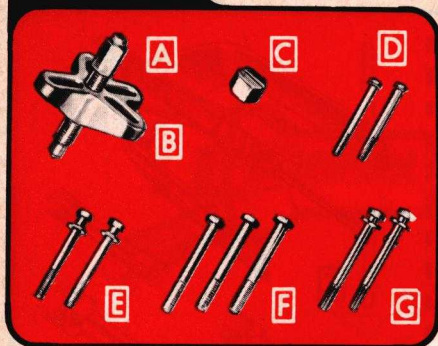
Stock No.	Description	Stock No.	Description
CG46-1	Slide Screw 1"-14	CG46-4	1 5/8" to 2" Collet
CG46-2	Slide Hammer (6 lb.)	CG46-5	2" to 2 1/2" Collet
CG46-3	Expanding Rod	CG46-6	2 1/2" to 3" Collet

CG46-7 Optional Hydraulic Adaptor. Attaches CG46 Puller above to CG150HY Hydraulic Puller (page 196).

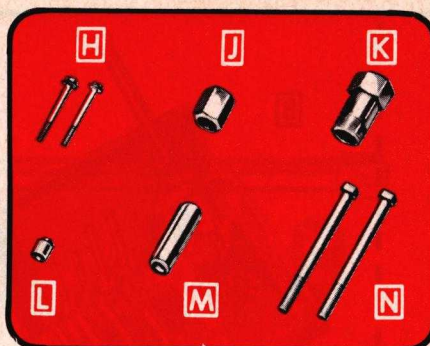
CG46-8 Optional Manual Adaptor. Attaches CG46 Puller above to CG150 Puller (page 196).

Pullers

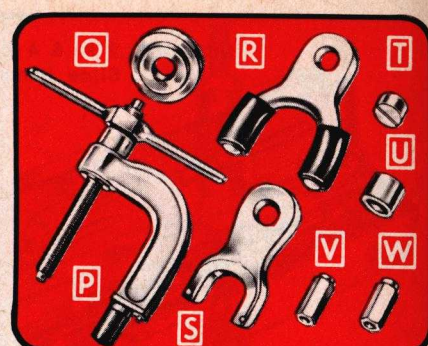
STEERING WHEEL & WHEEL HUB



GROUP 1



GROUP 2



GROUP 3

CAUTION: Always wear approved eye protection when using pulling equipment.

— Choose the set that's right for you. Adaptors protect shaft and wiring from damage —

CG60GBB Basic Set. Includes all the components illustrated in *Group 1* in **KRA111A** Metal Box. This set alone will service 1976-79 Opel, 1960-79 Chevrolet products, 1957-79 Chrysler, 1960-79 Dodge products, 1960-79 Ford products, 1957-75 Imperial, 1960-79 Oldsmobile and F-85, 1960-79 Pontiac and Phoenix... plus Toyota, Datsun, Alfa Romeo and other foreign cars.

CG60GB Set. Above set without metal box.

CG622BB Standard Set. Includes components from both *Groups 1 and 2*. Will handle all the cars in CG60GB set at left... plus 1959-79 AMC, 1955-79 Buick, 1959-79 Cadillac, 1960-79 Plymouth products and 1960-67 Studebaker. Comes in **KRA111A** Metal Box.

CG622B Set. Above set without metal box.

CG630B Complete Set. Includes all components in *Groups 1, 2 and 3*. Will also service all cars in CG60GB and CG622B sets at left... plus Lincoln, 1960-79 Mercury (wheels not tapped), 1946-79 Jeep, many light trucks, Renault and Honda.

OPTIONAL LARGE FORK

CG60-4B Steering Wheel Fork. Same design as item **S** but fits the 2" diameter posts found on many heavy trucks.

SETS' CONTENTS

Group 1 (CG60GB)

- A** CG60R1 Pressure Screw, 5/8"-18x4 1/8"
- B** CG60R2 2 & 3 Way Yoke, 5/8"-18
- C** CG60R3 Pressure Screw Adaptor
- D** CG60-7-4A Studs, 5/16"-24x4" (2)
- E** CG60-7-6 Studs & Nuts, 5/16"-18x3 1/2" (2)

- F** CG60M2 Studs, 3/8"-16x3" (3)
- G** CG60-17 Studs, 8 mm-1.25x90 mm (?)

Group 2 (CG622B), includes Group 1

- H** CG60-7-9 Studs, 1/4"-24x2 1/2" (2)
- J** CG60M1 Adaptor, 1 1/16"-20
- K** CG60N2 Adaptor, 1"-18

- L** CG60N3 Adaptor
- M** CG60C1 Adaptor
- N** CG60C2 Long Studs, 3/8"-16x4 1/2" (2)

Group 3 (CG630B), includes Groups 1 & 2

- P** CG60H Frame, includes:
- CG60-5 Pressure Screw, 3/4"-16x7 5/8"

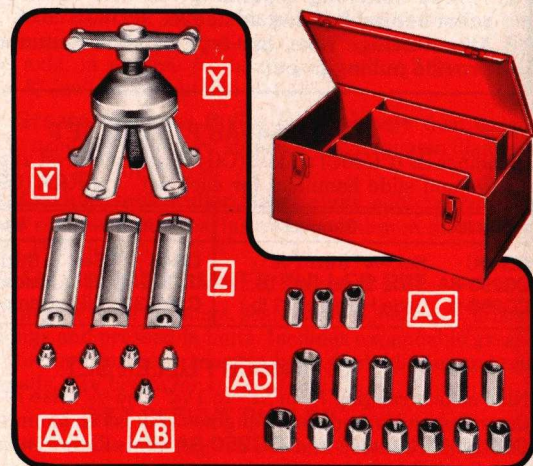
- Q** CG60-2 Frame Nut, 1"-14
- R** CG60-3 Wide Fork, 2 3/8" diameter
- S** CG60-4 Narrow Fork, 1 3/4" diameter
- T** CG60-11A Slotted Adaptor
- U** CG60-12-1 Large Truck Adaptor
- V** CG60K1 Ford Shock Puller, 5/8"-18
- W** CG60K2 Chevy Shock Puller, 1/2"-20



GA466A Steering Wheel Lock Plate Remover. Removes standard lock plates as well as those on telescoping steering and metric threaded systems. 4 1/2" x 1 1/2" x 3/4" bar with 7" x 3/4" steel tube. Two 4" long thumb screws included for positioning on the lock plate.

UNIVERSAL WHEEL PULLER

Remove press-fit rear brake drums or any demountable wheel hub from passenger cars and most light trucks by inserting jaws and attaching tool to stud bolts. Interchangeable jaws pivot and swing to any bolt circle. Jaws automatically center themselves. Thrust nuts are used on small and medium size cars. Puller available in 8 different set variations. See chart below.



[AD] TN1300 THRUST NUT SET

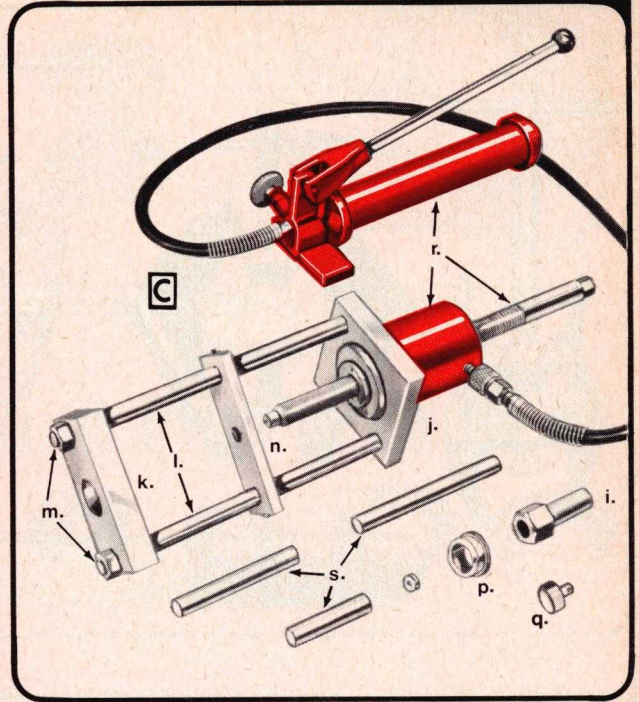
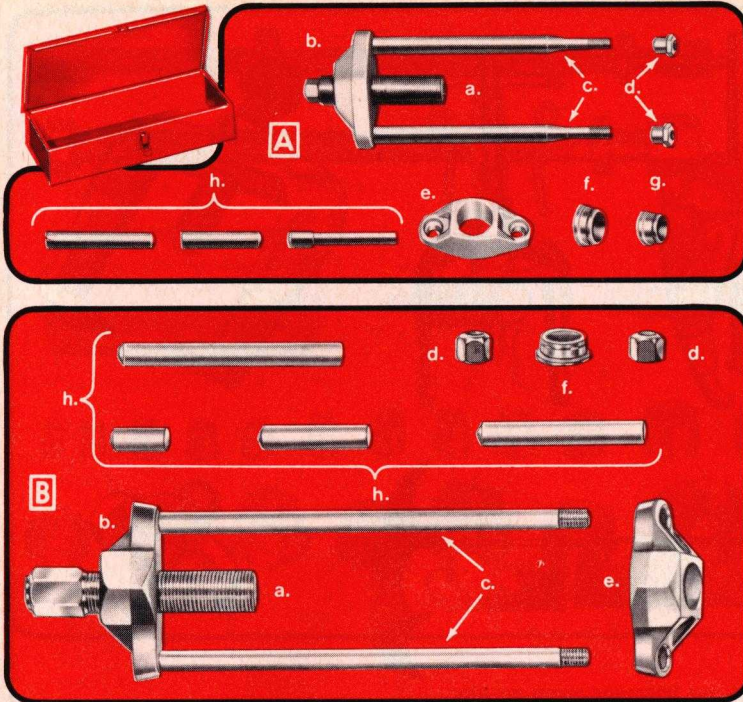
TN201 5/8"-18, 3/4" long	TN243 3/4"-16, 2" long	TN282 7/8"-18, 3/4" long	TN322 1"-14, 2" long
TN202 5/8"-18, 2" long	TN261 1 3/16"-16, 3/4" long	TN283 7/8"-14, 2" long	TN401 1 1/4"-12, 7/8" long
TN241 3/4"-16, 3/4" long	TN281 7/8"-14, 3/4" long	TN321 1"-14, 3/4" long	TN402 1 1/4"-12, 2 1/2" long
TN242 3/4"-20, 2" long			

UNIVERSAL WHEEL PULLER SETS

Puller Set Number	[X] CG4567P Body & Screw Assembly W/O Jaws	[Y] CG4567GA Short Jaws (4)	[Z] CG4567H Long Jaws (3)	[AA] CG4567C Tapered Stud Nuts (3) 3/16"	[AB] CG4567CC Tapered Stud Nuts (3) 7/16"	[AC] CG4567-I R & L Hand Thread Stud Nuts (3) 3/4"	[AD] TN1300 Thrust Nut Set	KRA107 Metal Box
S4567AB Basic Set	X	X	—	—	—	—	X	X
S4567A Basic Set W/O Box	X	X	—	—	—	—	X	X
S4567BB Standard Set	X	X	—	—	—	—	—	—
S4567B Standard Set W/O Box	X	X	—	—	—	—	—	—
S4567DB Complete Set	X	X	X	X	X	X	—	X
S4567D Complete Set W/O Box	X	X	X	X	X	X	—	X
S4567CB Complete W/Thrust Nuts	X	X	X	X	X	X	X	X
S4567C Complete W/O Box	X	X	X	X	X	X	X	—

KING PIN

Pullers



CAUTION: Always wear approved eye protection when using presses or pulling equipment.

KING PIN PRESSES

Presses provide an easy way to remove even stubborn king pins. Heads swivel to adapt to almost any car or light truck. Pilots and adaptor bushings adapt to different size king pins. *See below for components.*

A CG212AB General Purpose Set. In KRA104 Metal Box.

CG212A Set. Above set without metal box.

B CG230 Truck Set. Provides greater spread and reach than General Purpose Set. Pressure screw hex head fits 1½" wrench.

HYDRAULIC KING PIN PRESS SETS

Deliver 20 tons of controlled power to remove stubborn king pins on cars and trucks. Also removes brake shoe anchor pins on trucks. Has wide side arm construction for large truck applications. Thread size used is 1⅝"-8. Complete set includes **CG420A** Pump, Ram, Hose and Coupler Set. *See below for components.*

C CG430HYB Set. Complete set.

CG430A Set. Same as above without CG420A Hydraulic Power Pack.

King Pin Press No.	Spread/Reach	a. Pressure Screw	b. Screw Yoke	c. Screw Yoke Post (2)	d. Post Nut (2)	e. General Use Head	f. Bushing 1½"	g. Bushing 1"	Metal Box	h. Pilots
A CG212AB	3"/6½"	CG21A	CG21B	CG21D	CG21J	CG21P5	CG21P3	CG21P2	KRA104	CG21E Long ¾" Dia., CG21F Short ¾" Dia. CG21G Long ⅝" Dia.
B CG230	4⅛"/12¾/16"	CG230-1	CG230-2	CG230-4	CG230-5	CG230-3	CG230-6	—	—	CG230-7(2"), CG230-8(4"), CG230-9(6"), CG230-10(8")-All 7/8" Dia.

King Pin Press No.	i. Pressure Screw	j. Yoke Adaptor	k. Work Head	l. Yoke Post (2)	m. Post Nut (2)	n. Pilot Guide	p. 1⅜" Bushing	q. Expansion Plug	r. Hydraulic Power Pack	s. 7/8" Dia. Pilots
C CG430HYB	CG430-1	CG430-2	CG430-3	CG430-4	CG45-2	CG430-6	CG430-7	CJ91-2A	CG420A	CG230-8(4"), CG230-9(6"), CG230-10(8")

BAR-TYPE TAPPED HOLE PULLER (7½ TON)

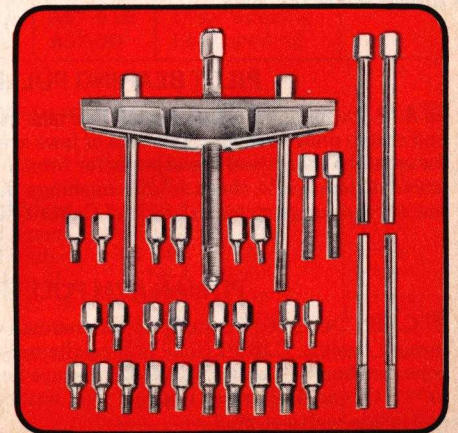
For pulling tapped bearings, pulleys and gears. Slide rods are available in three lengths...5," 10" and 20". For extra reach, two or more side rods may be used with CJ950, CJ951 and CJ952 Bearing Separators (page 203). Slotted yoke gives wide adjustment range. Adaptors screw onto side rods and fit wide range of tapped holes.

CJ84C Basic Medium-Duty Bar-Type Puller Set. Includes first five components listed at right.

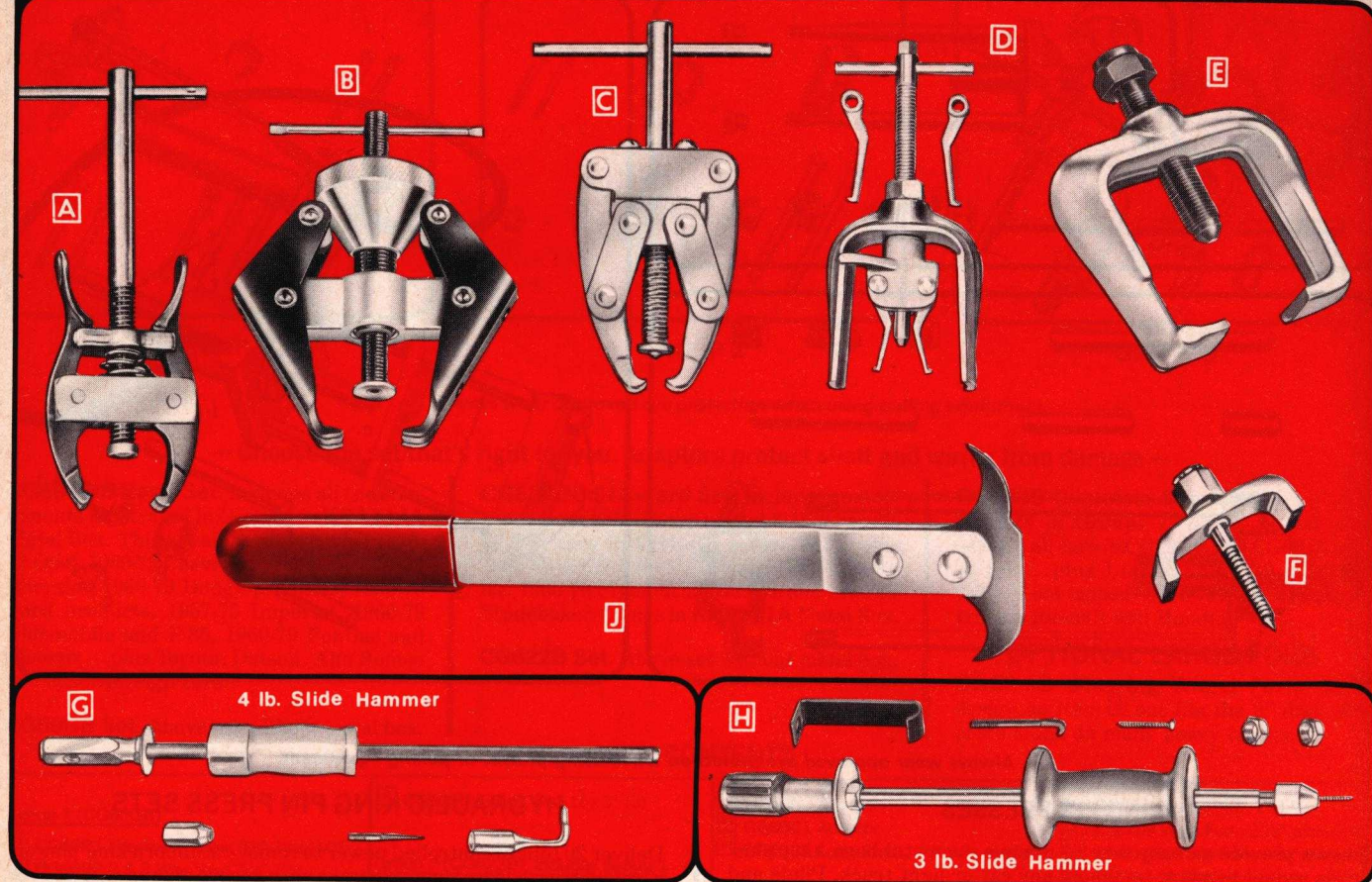
CJ840C Complete Set. Includes all components listed at right. With 5," 10" and 20" side rods in use, reach is 33". Connecting nuts come with side rods.

PULLER COMPONENTS

CJ84-1B Slotted Yoke (12" wide)
CJ84-4 13" Pressure Screw (1"-14)
CJ84A2 10" Side Rod (2) (⅝"-18)
ME5A16 Washer (2)
CJ84-16 Centering Adaptor
 †**CJ84-3** 20" Side Rod (2) (⅝"-18)
 †**CJ84-5** 5" Side Rod (2) (⅝"-18)
 †**CJ84-6** ⅝"-24 Adaptor (2)
 †**CJ84-15** ⅝"-18 Adaptor (2)
 †**CJ84-7** ⅜"-24 Adaptor (2)
 †**CJ84-8** 7/16"-20 Adaptor (2)
 †**CJ84-18** 7/16"-14 Adaptor (2)
 †**CJ84-9** ½"-20 Adaptor (2)
 †**CJ84-10** ⅜"-16 Adaptor (2)
 †**CJ84-11** ½"-13 Adaptor (2)
 †**CJ84-12** ⅝"-11 Adaptor (2)
 †**CJ84-17** ⅝"-18 Adaptor (2)
 †**CJ84-13** ¾"-16 Adaptor (2)
 †**CJ84-14** ¾"-10 Adaptor (2)



First 5 parts used on both CJ84C and CJ840C; parts with (†) used on CJ840C only.



CAUTION: Always wear approved eye protection when using pulling equipment.

BATTERY CLAMP PULLERS

A CJ92. Besides being excellent for pulling battery clamps, this puller is useful for pulling small bearings and gears. Jaw spread is $1\frac{1}{4}$ " maximum distance from screw to jaw tips is $\frac{3}{4}$ ". Pressure screw has $\frac{3}{8}$ "-16 thread.

B GA486. For removing cable clamps without breaking or damaging battery terminal posts. Has special pressure screw cross bar for easy turning.

GENERAL PULLER

C CG30A. The harder the pull...the tighter the grip. Maximum jaw spread is $1\frac{1}{8}$ " for gears up to $\frac{3}{4}$ " thick. Maximum distance from screw to jaw tips with jaw open is $1\frac{1}{2}$ ". Pressure screw has $\frac{3}{8}$ "-16 thread and is $5\frac{1}{4}$ " long.

PILOT BEARING PULLER

D A78. Designed to remove small bearings in generators, magnetos and clutch pilot bearings. Two sets of jaws are included...one set is for small bushings and the other is for bronze and oilite bushings to prevent damage to these fragile bushings during removal. Inside jaw spread ranges from $\frac{3}{8}$ " to $1\frac{1}{4}$ ". Capacity is 3 tons.

PITMAN ARM PULLER

E CJ89. Designed for most small domestic cars as well as some foreign models. **CJ89-1** Yoke is specially heat treated to withstand repeated hammer blows. **CJ89-2** Pressure Screw is $3\frac{7}{16}$ " long with $\frac{1}{2}$ "-20 thread. Puller has reach of $2\frac{1}{4}$ " with a jaw opening of $1\frac{1}{32}$ " and inside width of $2\frac{3}{8}$ ".

FREEZE PLUG PULLER

F CG25. Designed to handle freeze plugs up to 2" in diameter. Yoke is $\frac{1}{4}$ " thick...it has a $\frac{5}{16}$ " hole to receive the $2\frac{7}{8}$ " long self-tapping screw. The screw is able to withstand repeated hammer blows.

BODY DENT PULLER SETS

G CJ114 Set. Pulls dents from rocker, quarter, back and door panels without removing any inside panels or parts. Slide hammer weighs 3 pounds...when used with nose cone and sheet metal screw it punctures metal so screw grabs hold. Other adaptors are included for larger jobs...including bodyman hook and seal hook. Rubber coated, knurled handle.

H CJ107 Set. Performs similar functions to CJ114 above. Slide hammer weighs 4 pounds. Set includes taper screw, screw adaptor and "L" hook adaptor.

OPTIONAL ADAPTOR for CJ107

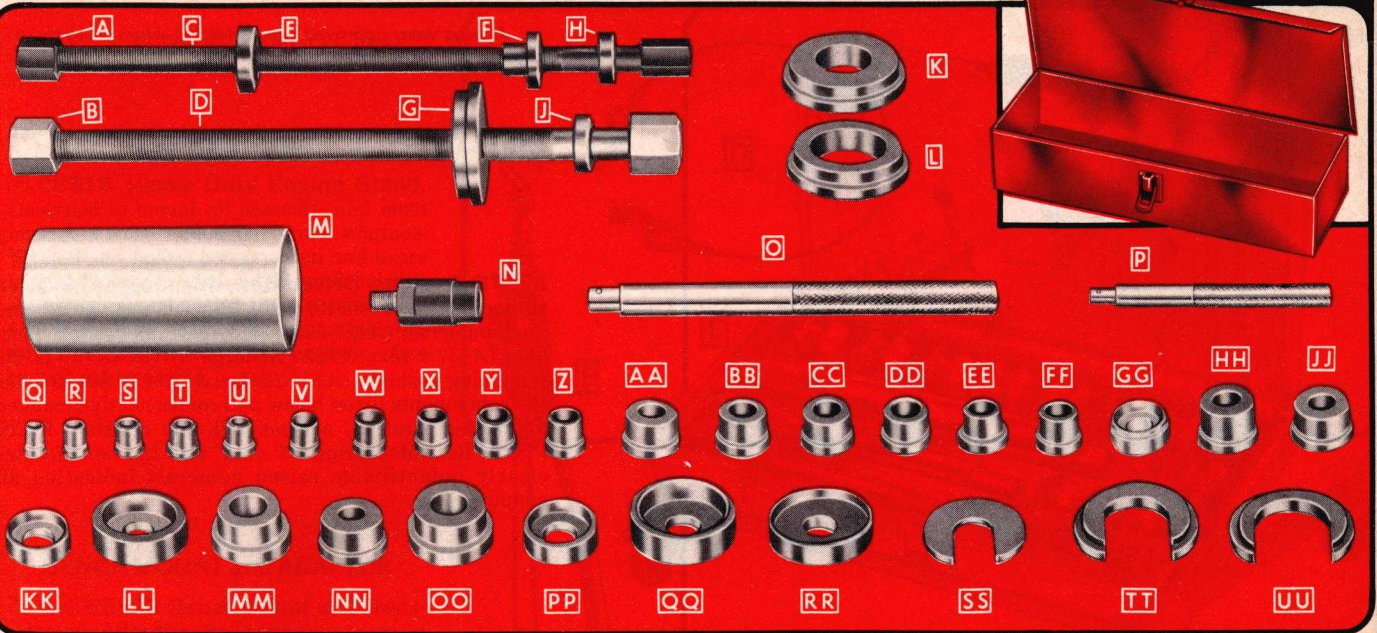
CJ107-4. The addition of this adaptor permits use of tapered screw with CG250-8A Slide Shaft and CG250-9 Slide Hammer (page 195).

SEAL PULLER

J YA105. Use to pull wheel bearing, transmission housing and other seals. Features two different tips for varied applications. Red vinyl grip. $12\frac{3}{8}$ " long.

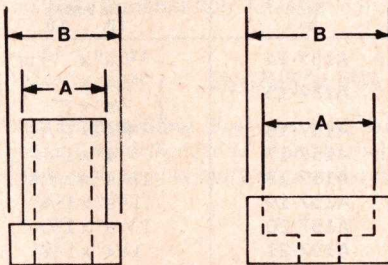
INSERTERS/REMOVERS/DRIVERS

Bushing



CAUTION: Always wear approved eye protection when using these tools.

INSERTER and REMOVER SET



For standard and specialized bronze, steel, rubber or Enlox bushings. Range of adaptor sizes covers nearly all shackle and steering bushings. New bushings are inserted by tightening screw, forcing bushing into place without hammering. Sleeve permits forcing out old bushings and is specially useful where limited space prevents driving them out.

A57QB Set. All parts pictured above, including the **KRA104** Metal Box. The five smallest adaptors are used only with the smaller driver.

A57Q Set. Above tools without Metal Box.

DRIVER/REMOVER PARTS

Key	Stock No.	Description
A	ME4A2	Nut 1/2"-20 thread
B	ME4A4	Nut 5/8"-18 thread
C	A57CA	Screw 1/2"-20 thread
D	A57-35	Screw 5/8"-18 thread
E	A57-3	Washer 1/2" I.D., 1 1/4" O.D.
F	A57-37	Sleeve Plate 1/2" I.D.
G	A57-39	Sleeve Plate 41/64" I.D.
H	ESD1428	Bearing 1/2" I.D., 1" O.D.
J	ME11A1	Bearing 5/8" I.D., 1 1/8" O.D.
K	A57-41	Sleeve Plate 1 1/16" I.D.
L	A57-38	Sleeve Plate 1 1/2" I.D.
M	A57-36	Sleeve 4 15/16" long, 2 1/16" I.D.
N	A57-27	Puller 1/8"-27 taper thread
O	A57-14A	Larger Bushing Driver
P	A57-15	Small Bushing Driver

ADAPTORS

Key	Part No.	"A"	"B"	Key	Part No.	"A"	"B"
Q	A57-16	.399"	.434"	FF	A57A13	.993"	1.122"
R	A57-17	.430"	.497"	GG	A57-46	1.034"	1.136"
S	A57-26	.492"	.622"	HH	A57-20	1.055"	1.184"
T	A57-18	.493"	.559"	JJ	A57-23A	1.101"	1.230"
U	A57-25	.554"	.684"	KK	A57-45	1.125"	1.250"
V	A57-8	.555"	.622"	LL	A57-42	1.187"	1.406"
W	A57-19	.601"	.668"	MM	A57-48	1.206"	1.500"
X	A57-7	.618"	.747"	NN	A57-29	1.222"	1.372"
Y	A57-6	.678"	.809"	OO	A57-40	1.367"	1.625"
Z	A57-5	.728"	.856"	PP	A57-44	1.375"	1.812"
AA	A57-24	.742"	.997"	QQ	A57-43	1.625"	2.000"
BB	A57-10	.789"	.918"	RR	A57-47	1.859"	2.000"
CC	A57-11	.851"	.980"	SS	A57-49R	1 13/16" opening	
DD	A57-22	.907"	1.046"	TT	A57-51R	1 7/32" opening	
EE	A57-12A	.919"	1.027"	UU	A57-50	1 3/8" opening	

HEAVY-DUTY BUSHING DRIVER SET



A158A Heavy-Duty Bushing Driver Set. For trucks, tractors and buses. Adaptors are secured to threaded drive shaft by knurled nut. Handle is knurled for firm grip. Set is securely and compactly stored in the solvent and chip-resistant **A158A10** Plastic Box.

Part No.	"A"	"B"
A158-1	1 5/16"	1 7/16"
A158-2	1 11/32"	1 1/2"
A158-3	1 7/16"	1 9/16"
A158-4	1 1/2"	1 5/8"
A158-5	1 9/16"	1 11/16"
A158-6	1 19/32"	1 3/4"
A158-7	1 3/4"	1 7/8"
A158-8	Driver	
A158-9	Driver Nut	

Bushing/Vises

BUSHING DRIVER SET

CAUTION: Always wear approved eye protection when using these tools.



A157B Bushing Driver Set. Adaptors are held on threaded driver shafts by a knurled nut. Small and medium driver (A157-3 and A157-2) fit all smaller bushings (A157-6 thru A157-12); large driver (A157-1) fits remaining bushings (A157-13 thru A157-22). Set includes the components listed below and comes neatly arranged in the temperature, solvent and chip resistant **PB20** Plastic Box. Measuring 10" x 5 1/4" x 2", the box includes clearly identifiable raised numerals indicating all adaptor sizes.

DRIVER COMPONENTS

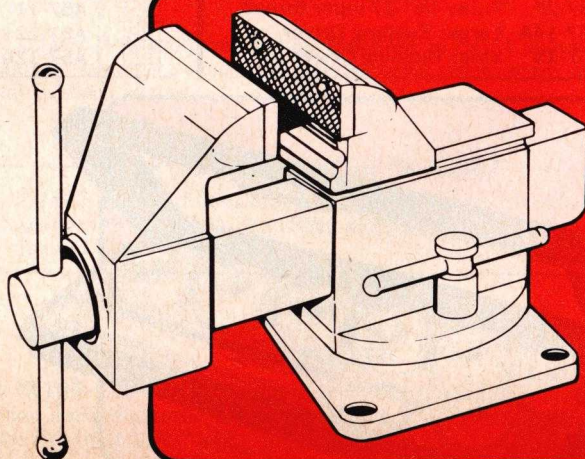
Stock No.	Description
A157-1	Large Driver
A157-2	Medium Driver
A157-3	Small Driver
A157-4	Nut (for A157-2 and A157-3)
A157-5	Nut (for A157-1)
PB20	Plastic Box

ADAPTORS

Stock No.	For Bushing I.D. O.D.	Stock No.	For Bushing I.D. O.D.
A157-6	3/8" x 7/16"	A157-14	13/16" x 15/16"
A157-7	7/16" x 1/2"	A157-15	{ 55/64" x 63/64" }
A157-8	1/2" x 5/8"		{ 7/8" x 1" }
A157-9	{ 9/16" x 11/16" }	A157-16	15/16" x 1 1/16"
A157-10	{ 39/64" x 43/64" }	A157-17	1" x 1 1/8"
	5/8" x 1 1/16"	A157-18	1 1/16" x 1 3/16"
A157-11	5/8" x 3/4"	A157-19	1 1/8" x 1 1/4"
A157-12	1 1/16" x 1 3/16"	A157-20	1 3/16" x 1 5/16"
A157-13	{ 47/64" x 55/64" }	A157-21	1 1/4" x 1 3/8"
	{ 3/4" x 7/8" }	A157-22	1 5/32" x 1 7/32"

VICES

VICES... Snap-on makes available to you a wide variety of heavy duty vises capable of handling most of your tough holding, bending, cutting or sawing jobs...some with permanent pipe holding jaws. A variety of vises are available in the correct sizes to meet your needs...including various jaw width, jaw opening and pipe capacity sizes. Check with your Snap-on representative for the current models available in your area.



STAND & HOISTS

Lifting

CAUTION should be used when using engine stands to prevent tipping.

ENGINE STAND

A CES1B Heavy Duty Engine Stand. Designed to mount all domestic and most imported auto and small truck engines. Welded and bolted construction and extra wide back for increased stability and mobility. Swivel engine mounting plate rotates 360° and locks into desired position. Includes four 3 1/4" dia. heavy duty casters—two swivel and two rigid.

CES1B7 VW Adaptor Kit. Includes necessary hardware for mounting VW air-cooled engines on CES1B Stand above.

BENCH MOUNT and ADAPTOR

B & C CES2B Bench Mount and Transmission Adaptor. Base mounts to most anchored and strong benches for easy work on transmissions. Multi-position adaptor bolts to all transmissions.

B CES2B2 Bench Mount only.

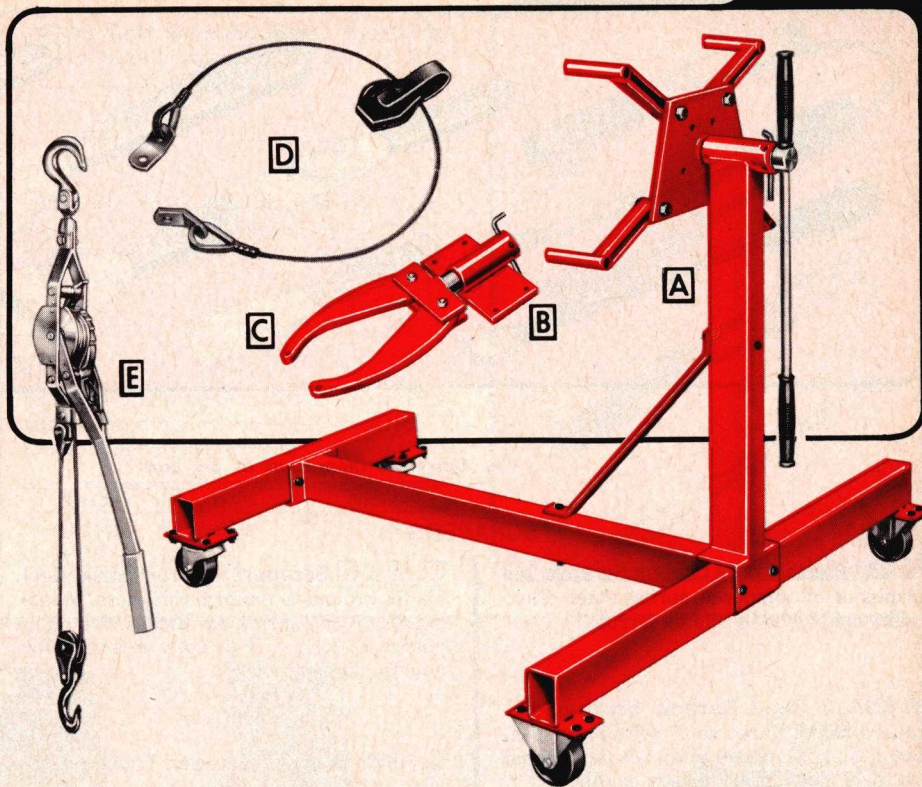
C CES2B1 Transmission Adaptor only.

ENGINE SLING

D A238 Engine Sling. Features a 40' long flexible cable...each end has a fitting drilled for 1/2" diameter bolts. Capacity is 1/2 ton. *Do not crimp cable around sharp edge or it can snap off.*

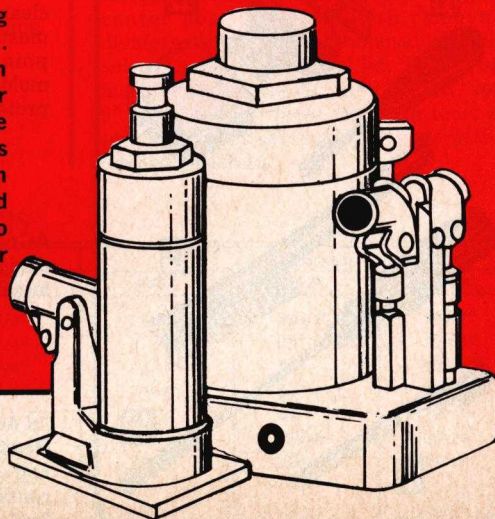
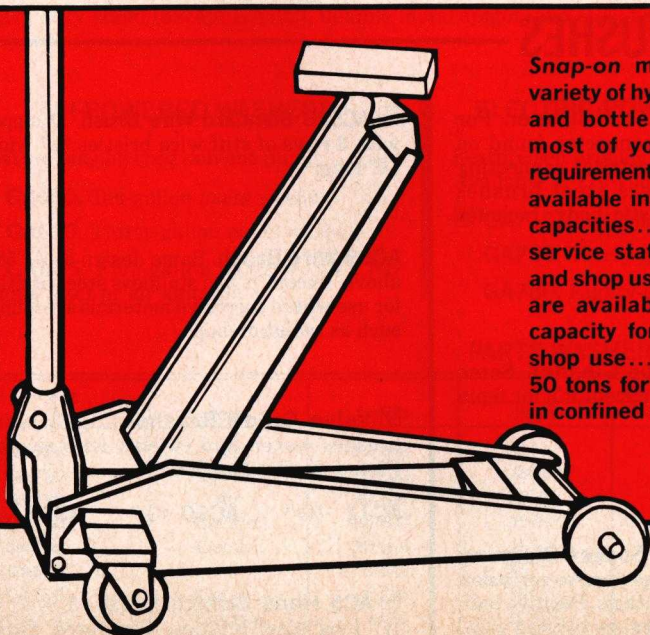
LIFTING-PULLING TOOL

E GA197A Lifting-Pulling Tool. Excellent for removing engines from autos and trucks. Has a maximum lift of 6 feet. This tool has a leverage ratio of 36:1 and a lifting capacity of 1 ton.



JACKS

Snap-on makes available a variety of hydraulic floor jacks and bottle jacks to handle most of your heavy lifting requirements. The floor jacks...available in 1 1/4 and 1 1/2 ton capacities...are excellent for service station, road service and shop use. The bottle jacks are available from 1 1/2 ton capacity for automotive and shop use...all the way up to 50 tons for that extra power in confined spaces.





CAUTION: Don't use these units as pry bars.

SCRAPERS

A CS1 Flexible Wire Carbon Scraper. Ten blades of oil-tempered spring steel. Flexibility controlled by sliding ferrule.

B CSA12 Rigid Carbon Scraper. 1/4" square shank flared to 1" scraping width. Blade slightly curved so tip lies flat against work. 12" long. Black plastic handle.

CSA10 Rigid Carbon Scraper. 1/4" square shank flared to 1/2" scraping width. 12 3/4" long.

CSA8 Rigid Carbon Scraper. 1/4" square shank flared to 7/8" scraping width. 7 9/16" long.

C CSA14 Carbon Scraper. 1/4" square shank flared to 1 1/2" scraping width. Ideal for scraping heads and engine blocks. 13 1/2" long with plastic handle.

D, E & F Scrapers. Mirror finish steel blades ground to uniform thickness. Maple handles resist shrinking. Blades riveted in place...one rivet is actually a ferrule for hanging up the tool.

D PK22 Straight Scraper. Blade is 1 1/2" wide and 3 5/8" long.

E PK23 Chisel Edge Scraper. Blade is 1 1/2" wide, 3 5/8" long and ground on one side.

F PK31 Heavy-Duty Chisel Edge Scraper. Blade is 3" wide, 4 1/8" long and ground on both sides. Handle is 7 5/8" long to bear down on tough jobs.

L PK300 Scraper Set. Includes PK22 and PK23 Scrapers above left and PK20 Putty Knife above right in a plastic tray.

PUTTY KNIVES

G thru K Wood Handle Putty Knives. Ideal for spreading plastic material used in filling body dents. Maple handles won't dissolve like plastic. Mirror finish, semi-flexible blades.

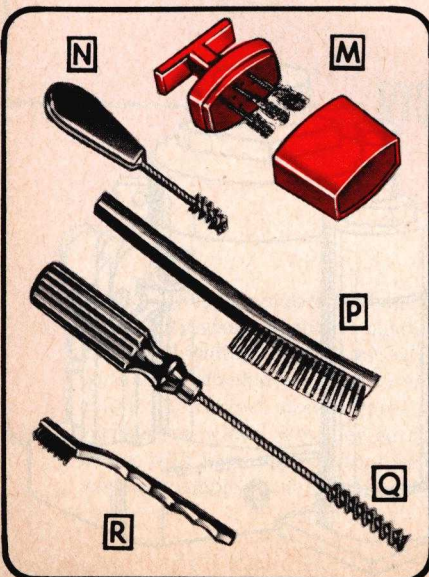
G PK40 Putty Knife. Blade is 4" wide and 4 3/4" long.

H PK20 Putty Knife. Blade is 2 1/8" wide and 3 3/4" long.

J PK24 Putty Knife. Blade is 2" wide and 3 3/4" long.

K PK25 Curved Putty Knife. Blade is 1 1/2" wide and 3 3/4" long.

WIRE BRUSHES



M AC77 Plug Connector Cleaner. For cleaning 7-pin female connector found on most tractor-trailer electrical connecting points. Seven stainless steel brushes molded into tough plastic body. Includes protective cap.

AC66 Plug Connector Cleaner. Same design as AC77 above, except it's for 6-pin female connectors.

N AC41A Tail Light Socket Cleaning Brush. Stiff wire bristles remove corrosion and clean socket and contacts. Positive bulb contact. Shaft is heavy gauge twisted wire. 7 1/4" long.

P AC58B Standard Wire Brush. Equipped with 3 rows of stiff wire bristles 3/4" wide. 14" long.

AC59 Wire Brush. Same design as AC58B above, except it has stainless steel bristles for use where corrosive materials are found, such as radiator shops.

Q Valve Guide Brushes. Spiral wire brushes woven into twisted wire shanks. Fluted wooden handles.

AC11 11/32" AC10 5/16" AC12 5/8"

R AC5 Hand Scratch Brush. 3 rows of 1/2" long steel bristles. Contoured finger grip in plastic handle. 7 1/8" long.

BRUSHES

Parts Cleaning

A YA123 Stiff Bristled Parts Cleaning Brush. Brush and wash off parts simultaneously. Contoured, non-slip plastic handle assures a solid grip. Tapered nylon bristles are 2 1/4" to 2 7/8" long and will reach easily into tight areas. Brush attaches to most parts washers for fast parts cleaning. Flared end of hose will fit 1/4" spouts. 24" long hose, 35 1/4" long overall.

YA136 Stiff Bristled Parts Cleaning Brush. Same design as YA123 above, except it will accommodate 3/8" spouts.

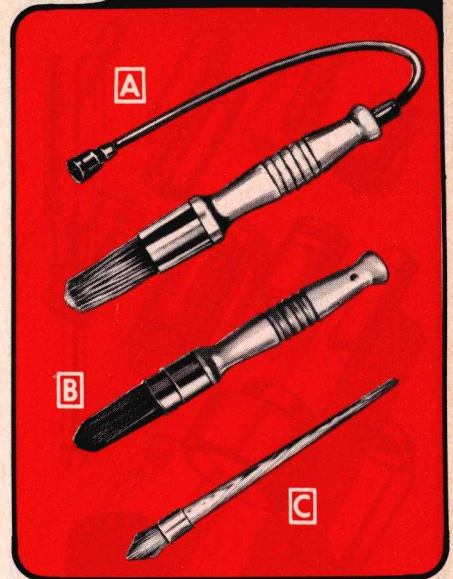
YA133 Soft Bristled Parts Cleaning Brush. Same design as YA123 above, except it features ultra-soft bristles.

YA146 Soft Bristled Parts Cleaning Brush. Same design as YA133 at lower left, except it's for 3/8" spouts.

B GA501 Parts Cleaning Brush. Same design as YA123 at left, except this stiff bristled brush does not include the hose. 11 1/4" long.

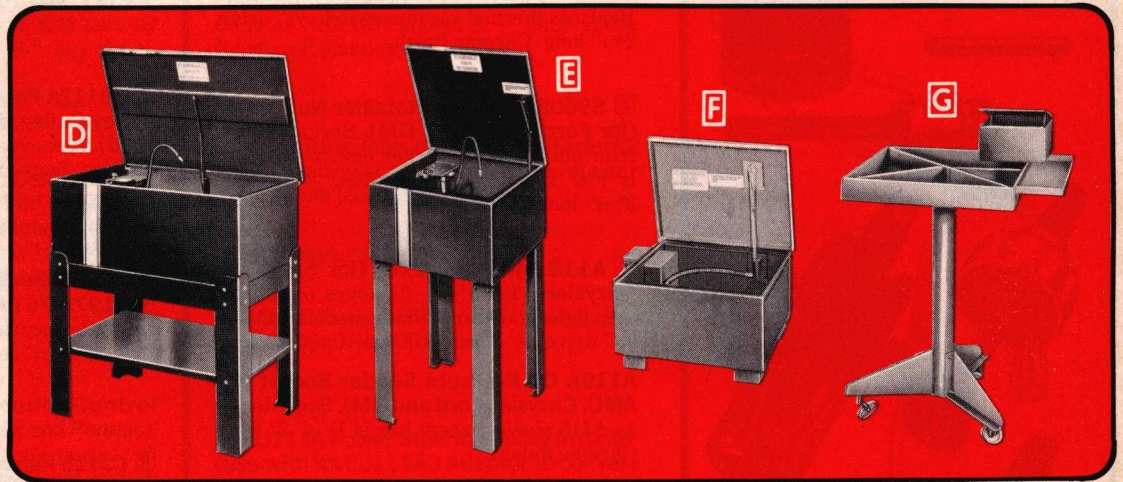
C Parts Cleaning Brushes. Long handles and tapered heads reach into restricted areas. Tough nylon bristles.

Stock No.	Length	Diameter
GA173A	8 1/2"	1/2"
GA174A	10"	3/4"
GA157A	12"	1"



PARTS WASHERS

CAUTION: Always wear approved eye protection when using parts washers. Use only in well ventilated area. Solvent fumes may be toxic and flammable. Follow instructions of the chemical manufacturer.



Designed for normal service shop parts soaking and clean-up work, each semi-automatic unit features a powered solvent pump, fire protective lid closure, built-in drain, screened sludge filter pad and deluxe air agitator and manifold (except GA605, GA705 and GA702), heavy duty stand (except GA702), flexible metal spigot, and steel parts basket.

AIR-POWERED WASHERS

Feature air-powered solvent pump.

D GA610. Ten-gallon parts washer.

GA630. Thirty-gallon parts washer.

E GA605. Five-gallon parts washer. No sludge filter or air agitator.

ELECTRIC-POWERED WASHERS

Feature self-priming electric solvent pumps. Available in 110-volt models only.

D GA710. Ten-gallon parts washer.

GA730. Thirty-gallon parts washer.

GA780. Eighty-gallon parts washer.

E GA705. Five-gallon parts washer. No sludge filter or air agitator.

F GA702. Three-gallon parts washer. No sludge filter or air agitator. Bench model.

NON-POWERED WASHER

G YA121. This portable parts washer features a large drain pan and a 3-gallon center post reservoir with removable dividers. Also features a removable 1-gallon solvent tank with hinged lid. This washer includes a detachable side tray (18" long, 6" wide and 1" deep) for small tools and parts. Includes three support legs with 2" diameter casters.

PARTS WASHER SPECIFICATIONS

Stock No.	Power	Capacity	Overall Dimensions			Tank Dimensions		
			Height	Width	Depth	Height	Width	Depth
D GA610	Air	10 Gal.	36 1/4"	30"	20 1/4"	11 3/4"	29 1/2"	19 3/4"
D GA710	Electric	10 Gal.	36 1/4"	30"	20 1/4"	11 3/4"	29 1/2"	19 3/4"
D GA630	Air	30 Gal.	35 3/8"	35 3/4"	24 1/4"	16 5/8"	35"	23 1/2"
D GA730	Electric	30 Gal.	35 3/8"	35 3/4"	24 1/4"	16 5/8"	35"	23 1/2"
D GA780	Electric	80 Gal.	36"	44"	28"	30"	44"	28"
E GA605	Air	5 Gal.	36"	20"	20"	12"	19 1/2"	19 1/2"
E GA705	Electric	5 Gal.	36"	20"	20"	12"	19 1/2"	19 1/2"
F GA702	Electric	3 Gal.	10 1/2"	15 1/2"	15 1/2"			
G YA121	None	3 Gal.	34"	20"	20"	5"	9"	9"

CAUTION: The sockets on this and the following page are for hand use only. Wear approved eye protection when using pulling equipment.

A S8368 Pronged Dash Nut Socket (for late-model AMC). Installs and removes dash nut retainers. $\frac{1}{4}$ " drive, $\frac{5}{8}$ " dia., $1\frac{1}{4}$ " long. Chrome finish.

B S9487 Pronged Dash Nut Socket (for 1968-current Chrysler). Removes nut on windshield wiper switch or headlamp switch. $\frac{1}{4}$ " drive, $1\frac{1}{2}$ " long. Chrome finish.

C S5908 Dash Nut Tool (for Ford and VW products). Services nuts on light switch, windshield wiper switch, 4-way flasher and radio trim. $7\frac{3}{4}$ " long. Chrome finish blade, plastic handle.

D S9842 Thermal Vacuum Socket (for AMC, Chrysler, Ford and GM). $\frac{7}{8}$ " hex. Replaces thermal vacuum switch. $\frac{1}{2}$ " drive, $2\frac{3}{4}$ " long. Chrome finish.

E S9605B Pronged Retainer Nut Socket (for Ford Torino and GM). Services radio trim nuts. I.D. at socket end is $\frac{1}{2}$ " O.D. is $\frac{9}{16}$ " Bolt clearance is $1\frac{5}{8}$ " $\frac{1}{4}$ " drive, $2\frac{5}{16}$ " long. Chrome finish.

F A118 Switch Socket (for Ford and Chrysler). $1\frac{1}{8}$ " hex. Removes or installs stop light or oil sender switch. O.D. is $1\frac{5}{16}$ " $\frac{3}{8}$ " drive, $1\frac{3}{4}$ " long. Chrome finish.

A119A Oil Pressure Sender Socket (for AMC, Chrysler, Ford and GM). Same design as A118 above, except hex is $1\frac{1}{16}$ " 2" long. Chrome finish.

G S8659B Oil Gauge Sender Wrench (for Chrysler and Ford). Also has applications on some International and Dodge trucks. $\frac{9}{16}$ " open end, $\frac{3}{8}$ " drive, $3\frac{3}{8}$ " long. Chrome finish.

H S8703 Pronged Remote Control Mirror Socket (for 1970-current Ford cars). Bolt clearance is $1\frac{11}{16}$ " O.D. is $2\frac{1}{32}$ " $\frac{3}{8}$ " drive, $2\frac{7}{8}$ " long. Chrome finish.

J S9479 Ball Joint Socket (for 1972-76 Dodge pickups and vans, and some 1957 and later Chrysler, Plymouth and Dodge cars). $\frac{3}{4}$ " drive, $2\frac{3}{4}$ " dia. Chrome finish.

K S6302 Ball Joint Socket (for compact Chrysler cars). O.D. drive end is $1\frac{7}{8}$ " wrench end is $2\frac{1}{4}$ " $\frac{3}{4}$ " drive, $3\frac{5}{8}$ " long. Black finish.

L Fuel Tank Sockets (for Ford products and some trucks). Service fuel tank hanger nuts as well as brake cables. $\frac{1}{2}$ " drive, 5" long. Black finish.

S6100. 15 mm single hex socket.

S6101. 13 mm single hex socket.

S6102. $\frac{3}{4}$ " single hex socket.

M STSM12LA Triple Square Cap Driver (for Pinto). Bit size is 12 mm. Services head bolts. $\frac{1}{2}$ " drive, $5\frac{11}{16}$ " long. Chrome socket, black bit.

FTSM8L Triple Square Cap Driver (for Pinto). Bit size is 8 mm. For use on oil pumps and idler pulleys. $\frac{3}{8}$ " drive, $3\frac{1}{4}$ " long. Chrome socket, black bit.

N CJ113A Power Steering Pulley Installer (for 1965-current Chrysler, some Ford, plus AMC and GM with bushing). 1" pulley driver hex, $\frac{7}{16}$ " pressure screw hex and $\frac{3}{8}$ "-16 thread, $4\frac{5}{8}$ " long. CJ113A3 Bushing is included to adapt unit to AMC and GM vehicles.

P CJ112A Power Steering and Alternator Pulley Puller (for Chrysler and 1965-73 Ford). Removes pressed on, 1- or 2-groove pulleys. Jaws are $4\frac{9}{16}$ " long. Black finish.

Q CJ117 Power Steering Pulley Puller (for 1975-76 AMC, some Ford and all GM cars). Replace the pulley with CJ113A above. Body is $1\frac{23}{64}$ " long, 2" dia. Black finish.

R CJ115 Pitman Arm Puller (for Ford and some GM cars). CJ83-2 Screw is $\frac{3}{4}$ "-16 x $6\frac{7}{8}$ " Includes CJ115-1 Body and CJ66-15-3 Expansion Plug. Black finish.

CJ119 Pitman Arm Puller. Same design as CJ115 above, except it's for heavy duty applications on most cars and trucks up to one ton.

Crankshaft Damper Pulley Removing and Replacing Tools (for 1974 Mustang II and Capri 2800 cc V-6 engines). Work even with radiator in place. No need to use a hammer.

S YA128 Remover. Special design eliminates damage to crankshaft threads and the pulley. Black finish.

T YA129 Replacer. Metric forcing screw and thrust bearing nut assembly press damper pulley onto crankshaft.

U S8694 Torque Adaptor (for Ford engines). Extends reach of Snap-on TORQOMETERS®. Double hex size is $1\frac{1}{16}$ " $\frac{1}{2}$ " drive, 4" long. Chrome finish.

A S9550 Plastic Nut Socket (for Chevrolet trucks). $\frac{3}{8}$ " single hex. For plastic acorn nuts that hold self-tap screws. $\frac{1}{4}$ " drive, 2" long. Chrome finish.

B S9605B Pronged Retainer Nut Socket (for GM and Ford Torino). Services light switches, windshield wiper controls and radio trim nuts...fits over their longer shafts and larger threads. Socket end I.D. is $\frac{1}{2}$ " O.D. is $\frac{9}{16}$ " Bolt clearance is $1\frac{5}{8}$ " $\frac{1}{4}$ " drive, $2\frac{7}{16}$ " long. Chrome finish.

C A119A Oil Pressure Sender Socket (for GM, AMC, Chrysler and Ford). $1\frac{1}{16}$ " special hex design. $\frac{3}{8}$ " drive, 2" long. Chrome finish.

D S9625 Spanner Socket (for 1979 E and F body GM cars and all GM cars by 1983). Services antenna. $\frac{3}{4}$ " hex drive, $1\frac{3}{4}$ " long. Chrome finish.

E S9842 Thermal Vacuum Control Socket (for GM, AMC, Chrysler and Ford). $\frac{7}{8}$ " hex. Replaces vacuum modulator control valve and thermal switch. $\frac{1}{2}$ " drive, $2\frac{3}{4}$ " long. Slot clears vacuum ports. $2\frac{3}{8}$ " clearance depth. Chrome finish.

F S9840C Thermal Vacuum Control Socket (for Buick, Oldsmobile and Pontiac). $1\frac{1}{4}$ " hex. For thermal vacuum ports. $\frac{1}{2}$ " drive, $3\frac{3}{8}$ " long. Side hole clears switch protrusion. Chrome finish. $2\frac{3}{8}$ " clearance depth.

G S6105 Glow Plug Socket (for GM automotive diesel). $\frac{3}{8}$ " double hex. Clearance bored. $\frac{3}{8}$ " drive, $2\frac{1}{8}$ " long. Chrome finish.

H Fuel Tank Nut Sockets (for GM and some other cars). Remove or replace fuel tank retaining strap nuts. $\frac{1}{2}$ " drive, 5" long. Black finish.

S9618. $\frac{9}{16}$ " hex. O.D. at socket end is $\frac{7}{8}$ "; $1\frac{5}{16}$ " at handle end.

S9620. $\frac{1}{2}$ " hex. Also has applications on emergency brake adjustment nuts and stabilizer bar retainers.

J S6103 Palnut Driver (for 1979 Cadillac and Seville). Fits $\frac{3}{8}$ " internal hex. Services inverted palnuts used to retain door trim panels. $\frac{1}{4}$ " drive, $1\frac{7}{8}$ " long. Chrome socket, black bit.

K S9623 Shock Absorber Wrench (for 1977 GM B and C cars). $\frac{1}{2}$ " double hex. Removes upper retaining nut on rear shock absorbers. Handle is 8" long. Hex center to handle center is $5\frac{1}{16}$ ". Chrome finish.

L S9716 Shock Absorber Wrench (for 1967-76 GM cars). $\frac{1}{2}$ " double hex. Services upper retaining nut of rear shocks. $7\frac{3}{16}$ " long. Chrome finish.

M SRP1CP Snap-Ring Pliers. Removes snap-ring on output shaft of some GM transmissions. Serrated jaw tips are bent at a 90° angle. Spring holds jaw closed. $\frac{1}{16}$ " tip thickness, $3\frac{3}{4}$ " wide, $8\frac{15}{16}$ " long. Black finish, red plastic grips.

N PR15 Snap-Ring Pliers. Same applications as SRP1CP above. $5\frac{1}{2}$ " long. Black finish, red plastic grips.

P Snap Ring Tools (for DELCO starters). Allow removal of ring and tool from starter shaft as one piece. Black finish.

GA188. $3\frac{15}{16}$ " long.

GA194. Larger shaft diameter, 4" long. For heavy duty DELCO starters.

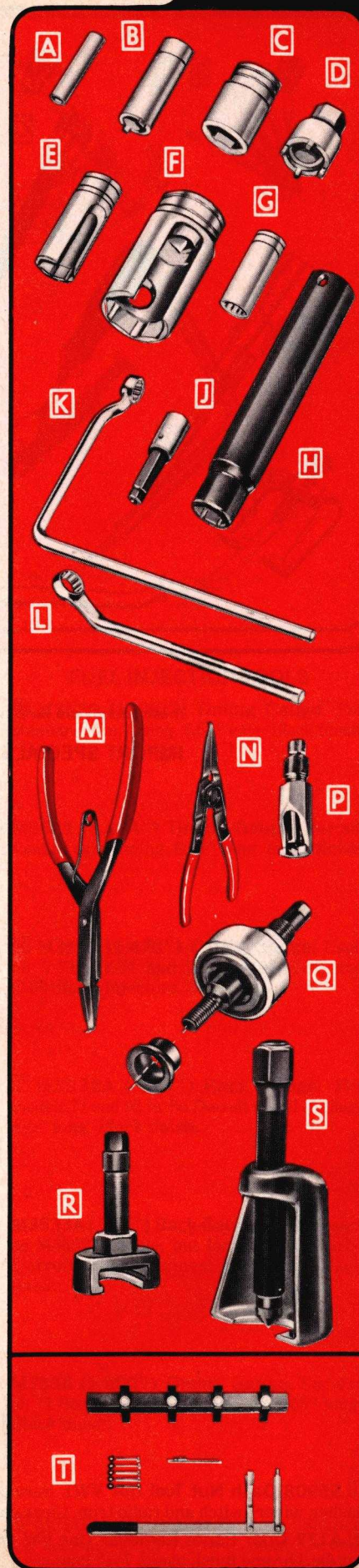
Q CJ113A Power Steering Pulley Installer (use with its CJ113A3 Adaptor to convert to GM and AMC applications). 1" pulley driver hex, $\frac{3}{8}$ "-16 pressure screw with $\frac{7}{16}$ " hex. $4\frac{5}{8}$ " long.

R CJ117 Power Steering Pulley Puller (for all GM, some Ford and 1975-76 AMC cars). Replace the pulley with the CJ113A above. Body is $1\frac{23}{64}$ " long, 2" dia. Black finish.

S CJ115 Pitman Arm Puller (for some GM and most Ford cars). CJ83-2 Screw is $\frac{3}{4}$ "-16x6 $\frac{7}{8}$ ". Includes CJ115-1 Body and CJ66-15-3 Expansion Plug. Black finish.

CJ119 Pitman Arm Puller. Same design as CJ115 above, except it's for heavy duty applications on most cars and trucks up to one ton.

T VL1 Camshaft Tool (for Monza, Vega and Astre thru 1976). Services springs and valve spring keepers on cars with 140 cu. in. 4-cylinder engines. Includes depressor assembly, compressor tool and magnetic pickup tool.





CAUTION: These sockets are for hand use only.

IMPORT SPECIALS

A PMP410 Pipe Plug Socket (for Renault Le Car). 10 mm single square. For removing or replacing brake drain plug of the standard transmission. $\frac{3}{4}$ " O.D., $\frac{3}{8}$ " drive, 1" long. Chrome finish.

B CPT110A Drain Plug Socket (for VW). 17 mm single hex. For standard transmission drain plug. $\frac{3}{8}$ " drive, 1" long. Chrome finish.

C S5921 Magnetic Socket (for 1968-current VW). 8 mm double hex. Services torque converter on air-cooled engines. Magnet helps prevent bolts from dropping into bell housing of flywheel. $\frac{3}{8}$ " drive, $1\frac{1}{8}$ " long. Chrome finish.

D S6104 Fuel Injector Socket (for VW diesel). 27 mm single hex. Clearance bored to fit over fuel injector. $\frac{1}{2}$ " drive, $3\frac{1}{2}$ " long. Chrome finish.

E S5925A Clutch Adjusting Socket (for 1966-current VW standard transmissions). 14 mm single hex. Has clutch cable clearance of .359" with slots for wing nut. O.D. is .835" 1.53" long. Chrome finish.

F TMUSM10 Oil Pan Bolt "FLEXOCKET" (for VW Rabbit gas and diesel engines). 10 mm single hex. $\frac{1}{4}$ " drive, $1\frac{3}{8}$ " long. Chrome finish.

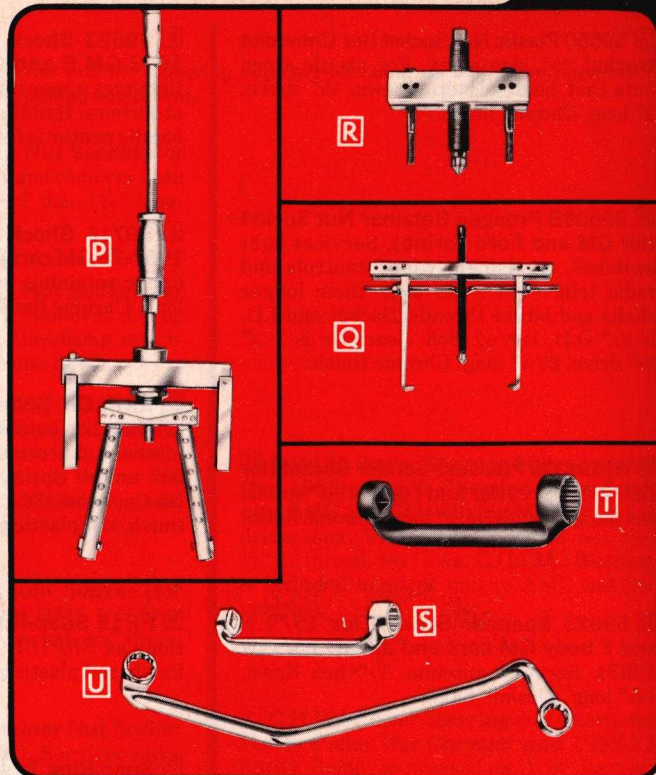
G S6018 Hex Head Driver (for LUV trucks, Mercedes Benz, Datsun and Dasher). 10 mm hex bit. Services cylinder head bolts. $\frac{1}{2}$ " drive, 6" long. Bit length is $4\frac{1}{2}$ ". Chrome finish.

H Triple Square Cap Drivers. Use with a Snap-on "TORQOMETER" for head and manifold cap screws, plus other applications.

Stock Number	Square Drive	Fastener Size	Overall Length	Special Application
FTSM6A	$\frac{3}{8}$ "	6 mm	$1\frac{7}{8}$ "	VW disc brakes
FTSM8B	$\frac{3}{8}$ "	8 mm	$2\frac{3}{16}$ "	Opel manifold
STSM10B	$\frac{1}{2}$ "	10 mm	$3\frac{1}{2}$ "	Opel head bolts
STSM12A	$\frac{1}{2}$ "	12 mm	$4\frac{3}{16}$ "	Opel head bolts

I S5908 Dash Nut Tool (for VW). Services light switch, 4-way flasher, wiper switch and radio trim. Clear plastic handle. $7\frac{3}{4}$ " long.

K A177 Door Panel Remover (for VW and GM). Black plastic handle, chrome finish blade. $7\frac{1}{2}$ " long.



CAUTION: Wear approved eye protection when using pulling equipment.

FARM TRACTOR TOOLS

PULLERS

P CG80 Wet Sleeve Puller. Reach is 7-12". Can use on cylinders with 3-6" dia. Initial pulling is done with pressure screw...slide hammer completes the job. Adjustable bridge fits around block studs. An impact wrench can be used. Always wear approved eye protection when using pulling equipment.

Q CJ116 Brake Drum Puller. For farm machinery maintenance. Lock jaws on outer rim of drum, center pressure screw on axle and apply pressure.

R CJ121 Crankshaft Pulley Puller (for John Deere tractors). Tapped hole puller includes 4 pairs of various size screws.

TORQUE ADAPTORS

S S8684B Torque Adaptor (for late model John Deere, J. I. Case and Massey Ferguson). $\frac{13}{16}$ " double hex, $\frac{1}{2}$ " drive. $4\frac{5}{8}$ " between heads. $6\frac{1}{8}$ " long. Chrome finish.

T B4203 Torque Adaptor (for John Deere, J.I. Case and Minneapolis-Moline). $\frac{15}{16}$ " double hex, $\frac{1}{2}$ " drive. $1\frac{1}{4}$ " box end dia., $1\frac{1}{64}$ " square end dia. $5\frac{1}{2}$ " long. Black finish.

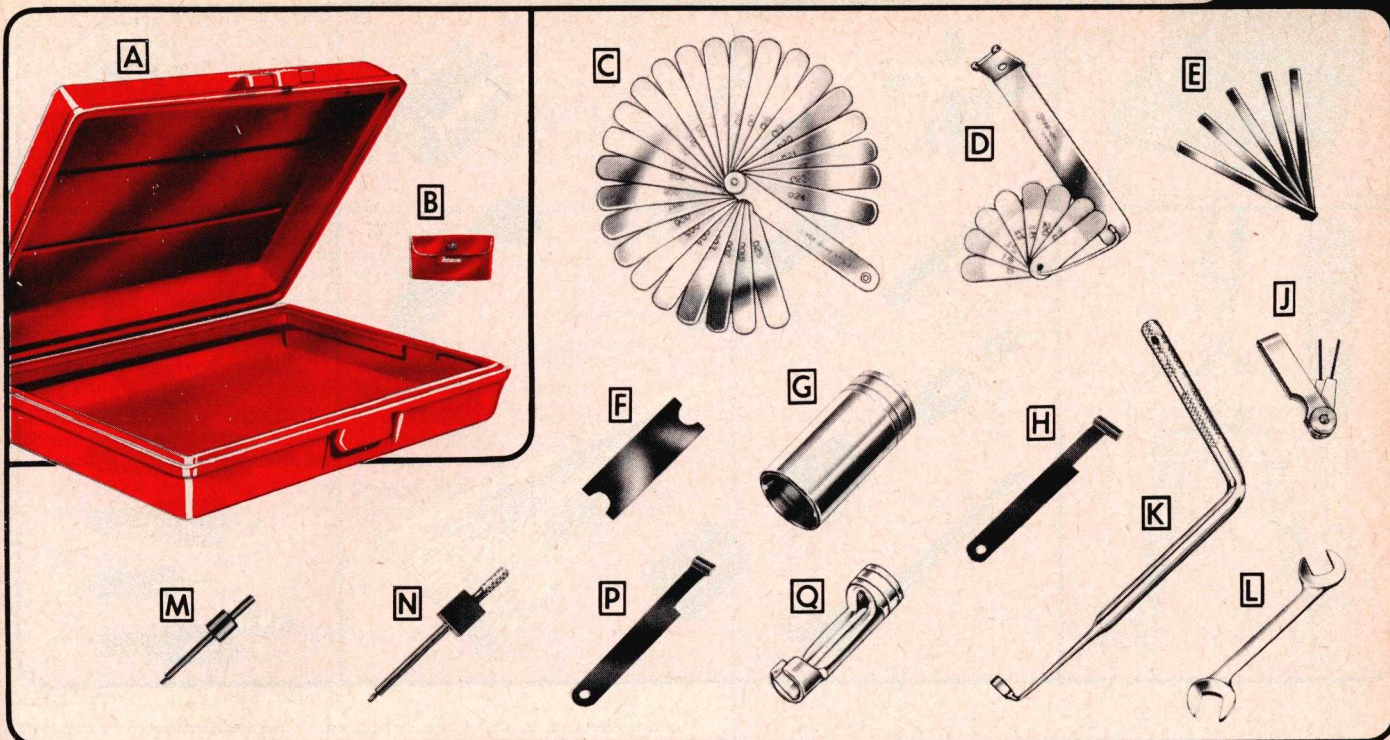
OFFSET WRENCH

U B4400 Starter Wrench (for garden size and up John Deere tractors plus many other applications). $\frac{9}{16}$ " double hex box ends. Chrome finish.

L S5911 Offset "BOXOCKET" (for VW). 13 and 14 mm double hex box ends. For heater junction boxes, carburetors and exhaust systems. $5\frac{13}{16}$ " long. Chrome finish.

M S5902 Oil/Transmission Plug Wrench (for VW). One end has 17 mm male single hex; other is 21 mm double hex "BOXOCKET". $10\frac{1}{4}$ " long. Chrome finish.

N CJ89 Pitman Arm Puller (for some imported and most small domestic cars). CJ89-2 screw has $\frac{1}{2}$ "-20 threads. Reach is $2\frac{1}{4}$ ". Includes CJ89-1 specially heat treated yoke.



DETROIT DIESEL SET

2020CDSB Set. Contains all tools listed on this page in a PB25 Plastic Case. For Detroit In-Line and "V" Series diesel engines.

2020CDS Set. Above set with tools only.

A PB25 Plastic Case. For storing 2020CDSB Set components.

B C10C Plastic Pouch. For storage of timing pins.

FEELER GAUGES

C FB325A Feeler Gauge Set and Holder. Includes 25 $\frac{3}{8}$ " blades in sizes .0015" plus .002" through .025" in .001" graduations. Chrome finish.

D FB308C Step Feeler Gauge Set and Holder. Includes 12 step blades with 18 sizes from .008" to .030" U.S./metric stamped. Chrome finish.

E M3524 Feeler Gauge Set. Includes 5 blades, all .0015" x $\frac{1}{4}$ " for valve bridge adjustment. Black finish.

F M3523 Governor Gap Feeler Gauge. Straight blade. .170" and .200" Black finish.

SPANNER SOCKET

G M3525. For high speed threaded adjustment lock ring. $\frac{1}{2}$ " drive, 3.210" long. Chrome finish.

THROTTLE DELAY TOOLS

H M3528A (.404") Cylinder Gauge. For coach applications. 4.38" long. Black finish.

M3529A (.454") Cylinder Gauge. For turbo charged and 53 Series. 4.38" long. Black finish.

M3534A (.570") Cylinder Rack Gauge. Same design and function as M3528A above, but for use on Detroit diesel engine models 53, 71T, V71N, V71T, V71TA, V71T1, V92T and V92TA injectors. (Serial numbers 9285 and below). $4\frac{1}{2}$ " long. Black finish.

M3535A (.636") Cylinder Rack Gauge. Same design and function as M3528A above, but for use on Detroit diesel engine models V92T and V92TA injectors. (Serial numbers 9290 and above). $4\frac{1}{2}$ " long. Black finish.

I M3539 Pin Gauge and Holder. 2 wire sizes, .069" (**1.75 mm**) and .072" (**1.83 mm**) For 53, 71 and 92 Series. $2\frac{5}{16}$ " long when closed. Chrome finish.

FBFT7 Gauge Ring. (Not shown). Ring for holding Throttle Delay gauges together.

OPEN END WRENCHES

K M3517B ($\frac{1}{2}$ "). For lock nuts on valves and injectors. 102° offset handle. Chrome finish.

M3518 ($\frac{5}{16}$ "). Smaller version of M3517B above. For push rods. Chrome finish.

L M3530 ($\frac{3}{8}$ "). Has 30° and 60° angle heads for governor gap adjustments. 4" long. Chrome finish.

M3531 ($\frac{7}{16}$ "). Has 30° and 60° angle heads for governor gap lock nuts. 4" long. Chrome finish.

FUEL INJECTION TOOLS

M M3520 (1.460") Timing Gauge. For standard cam timing. 3.61" long. Black finish.

M3521 (1.484") Timing Gauge. For advanced cam timing. 3.61" long. Black finish.

N M3527 (1.470") Timing Gauge. Used on V-71, 6V-71 and Inline with C-55 and C-60 diesel injectors. $3\frac{5}{8}$ " long.

P M3532A (.345") Rack Gauge. For models 71 and 92 turbo Detroit diesel engines. $4\frac{1}{2}$ " long. Black finish.

M3533A (.385") Rack Gauge. Same design as M3532A above, but for model 92 turbo Detroit diesel engines. $4\frac{1}{2}$ " long. Black finish.

M3536 (1.500") Timing Gauge. For use on 71 Series with "B" injectors. 3.65" long. Black finish.

Q M3503A ($\frac{1}{2}$ ") Line Socket. Shaped for access. $\frac{3}{8}$ " drive, $3\frac{1}{4}$ " long. Chrome finish.



CAUTION: Always wear approved eye protection when using puller or impact equipment.

A CM279 Gauge Set. Full range of 0-1" for setting Cummins injectors. Attachments position the indicator and include 7½" post, 4" post, hinged support arm and offset contact point. Plunger travel is in .001" increments.

B CG80 Wet Sleeve Puller. For Cummins, Detroit and J.I. Case products... plus any trucks, heavy construction and farm equipment with cylinder diameter of 3-6" Reach is 7-12" Utilizes a pressure screw for initial loosening and a slide hammer to complete the job. Its adjustable bridge fits around studs in the block. See page 204 for components.

C CJ83B Timing Gear Puller. 4¼" long pressure screw. Two pulling studs of ⅜"-16 thread handle most tapped timing gears. Also fits holes in CJ950 Bearing Separator (page 203).

D M1325 Fuel Injector Puller. Removes fuel injectors on Cummins V8 903, 6-cylinder H series and 6-cylinder K series engines with or without Jacobs brakes. Wear approved eye protection when using slide hammer pullers.

E M1324 Pulley Installer. For 1950-current Cummins NH and NT models. Presses the accessory drive pulleys onto the shaft far enough to receive the retaining nut. Includes: installer screw, washer bearing, installer housing. ½" drive. Black finish.

F ST747C Engine Turning Tool. Turns engine over when adjusting valves and auxiliary pulley without damage. Lock button on handle for use with 24A Tubular Handle (page 104). 8⅝" long. Black finish.

G M1326 Idle Adjusting Tool. For idle speed adjustments on the fuel pump of Cummins engines. 3⅜" long.

H M3546 Idle Adjusting Socket. ⅞" single hex "Flank Drive." Use with ⅞" wrench to adjust governor idle speed on Detroit diesels. ⅞" male hex drive, 2⅞" long. Chrome finish.

I S6105 Glow Plug Socket. For GM automotive diesel engines. ⅝" double hex. Clearance bored. ⅝" drive 2⅞" long. Chrome finish.

K B1465A Jacobs Engine Brake Impact Socket. ⅝" double hex, "Flank Drive." ½" drive, 5" long. For most Cummins and Detroit diesels. Black finish. For use with impact wrenches.

L M1323 Fan Nut Socket. Has 4 tangs for gripping fan retainer nut on Cummins, Detroit and Caterpillar diesels with hydraulically controlled Horton fan. ¾" drive, No. 06 4-tang, 2⅞" O.D. drive end, 1¾" O.D. wrench end. 1½" long. Black finish.

M M1327 Head Bolt Socket. For Cummins K series engines. 1⅞" single hex "Flank Drive." ¾" square drive, 2" long. Also use: IM182R Locking Ring, IM182P Steel Locking Pin or IM182PP Reinforced Plastic Pin. For use with impact wrenches.

N Impact Sockets. 1" drive sockets are designed for the two most popular sizes of pinion nuts on truck drive lines. Black finish. For use with impact wrenches.

M3547. 2⅞" single hex, 3⅝" long.

M3548. 2¾" single hex, 3¾" long.

P B1202 Fuel Line Socket. ¾" single hex. Removes or installs fuel injection lines on Caterpillar diesels. ½" drive. Black finish.

Q PPM516 Engine Oil Drain Plug. For Cummins diesels. ½" male and female drives. 59/64" O.D., 1⅞" long. Chrome finish.

R FB319 Feeler Gauge. For injector adjustments on diesel engines. Includes 19 blades (½" x 12") in sizes .0025", .003" thru .020" (in .001" graduations).

FB519 Feeler Gauge. Same design as FB319 above, except blades are 18" long.

S MT33A Compression Gauge. For use on diesel engines. Black and blue markings on dial face range from 0-800 psi and 0-5500 kPa. Gauge includes 18" hose with release valve. Use with adaptors listed below:

T M3540 Adaptor. For Cummins NH and 903 diesel engines.

U M3541 Adaptor. For all Cummins V555 diesel engines.

V M3542 Adaptor. For VW diesel engines.

W M3543 Adaptor. For all Detroit (GM) 53, 71 and 92 engines.

M3545 Adaptor (not shown). For Oldsmobile and Cadillac diesels.

DIESEL SERVICE TOOLS

[A] ST845 Fan Mount Nut Wrench. 2" size for fan tension adjustment on Cummins. 15" long, 4 1/4" head width, 1 1/32" head thickness and 7/8" handle diameter. Chrome finish.

[B] Adjusting Wrenches. Service Cummins lock nuts in valve and injector adjusting work. For final torquing, use ST669 Torque Adaptor Set (below) and TE175 "TORQOMETER®" (page 129). Wrenches are double hex, "Flank Drive." Knurled handle has chrome finish.

Stock No.	Wrench Size	Overall Length	Stock No.	Wrench Size	Overall Length
M1318	3/4"	12 1/2"	M1320	1 5/16"	12 5/16"
M1319	7/8"	12 1/4"	M1322	3/4"	14 3/4"

[C] M3516A "BOXOCKET." For fuel and water pumps, plus governor housings on Detroit diesels. 12 point ends are 1/2" "Flank Drive." Both ends offset for clearance. 6 13/16" long. Chrome finish.

[D] M1321 Curved "BOXOCKET." For 71NH350 Cummins. Allows access to air compressor housing flange bolts and fuel pump bolts. 5/8" and 1 1/16" 12 point "Flank Drive." Chrome finish.

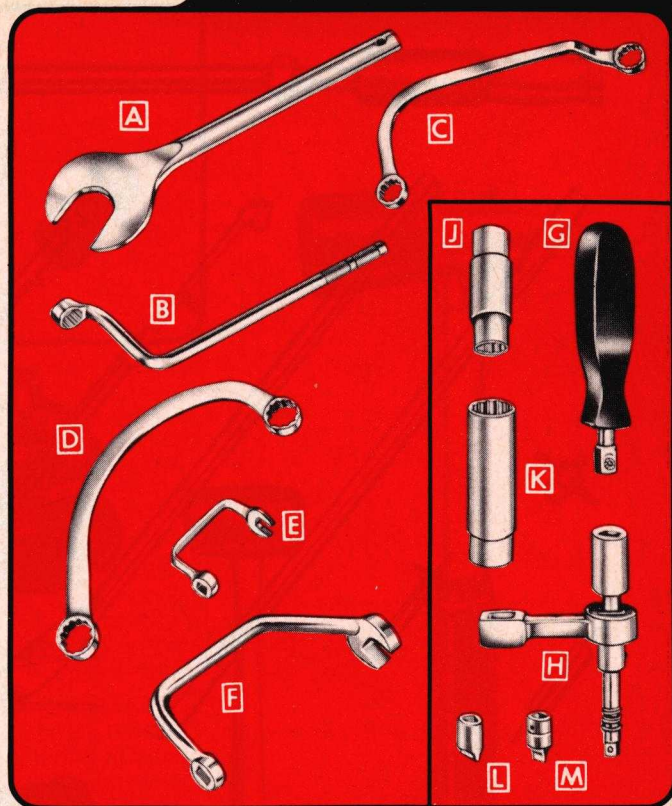
[E] ST1137A Adjusting Screw Torque Adaptor. 7/16" open end torques injector adjusting screw when Jacobs brakes are installed. 3/8" drive, 3 3/16" long. Use with TE50FA "TORQOMETER®" (p. 129).

[F] ST1136A Lock Nut Torque Adaptor. 3/4" open end torques lock nut when Jacobs brakes are installed. 1/2" drive, 7 1/2" long. Use with TE100 "TORQOMETER®" (p. 129).

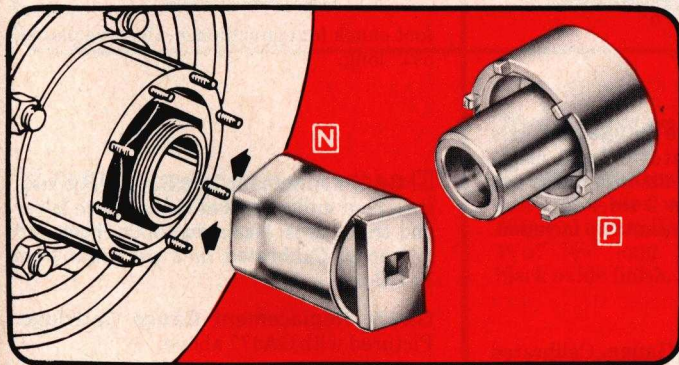
[G] thru [M] ST669 Torque Adaptor Set. For Cummins. Loosens lock nuts, adjusts valves and injectors and torques them to manufacturer's specifications. Use with TE12A or TE175 "TORQOMETERS®" (p. 129). Set Includes:

[G] F40A 3/8" drive Plastic Handle	[K] M1302B24 3/4" Deep 12 pt. Socket
[H] ST669-1 Handle Assembly	[L] M1302A5 1/2" x .062" Screwdriver
[J] M1302B18 9/16" Deep 12 pt. Socket	[M] TM82 1/4" x .032" Screwdriver

Diesel /Tire & Wheel



TRUCK TIRE and WHEEL

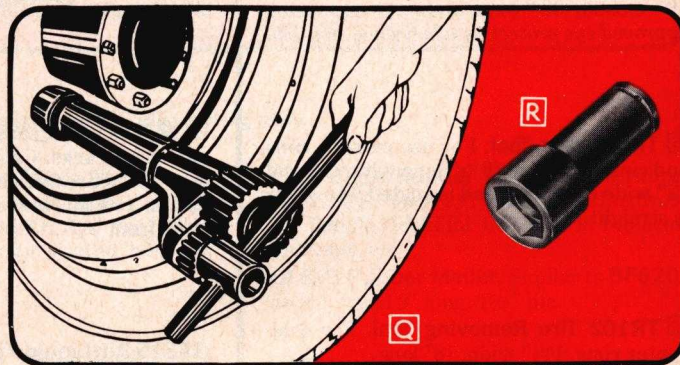


[N] Axle Nut Sockets. For use with a torque wrench when servicing truck wheel bearing lock-nuts. 3/4" drive with 6- or 8-point openings. Extension is needed for some new wide truck wheels.

Stock No.	Size	Points	Stock No.	Size	Points
ANS1901	23/32"	6	ANS1909	3 1/4"	8
ANS1902	23/8"	6	ANS1910	3 1/2"	6
ANS1921	2 1/2"	6	ANS1912	3 7/8"	6
ANS1904	2 9/16"	6	ANS1913	3 7/8"	8
ANS1905	2 9/16"	6	ANS1914	4"	6
†ANS1928	2 9/16"	6	ANS1915	4 1/8"	6
ANS1932	2 7/8"	6			
ANS1906	3"	6			
ANS1908	3 1/4"	6			

[P] Axle-Nut Spanner Sockets. For use with a torque wrench when servicing wheel bearing lock-nuts on Chevrolet and G.M.C. truck axles. 3/4" drive. See axle capacities below for the proper socket.

ANS1929	For 1946-current Chevrolet and GMC with 5,200 and 7,200 lb. axles.
ANS1930	For 1954-current Chevrolet and GMC with 11,000 and 13,500 lb. axles.
ANS1931	For Chevrolet and GMC with 15,000 and 17,000 lb. axles.



[Q] GA83 "Powerwrench." Mount and remove Budd wheels. Once mounted, it supports itself, leaving both hands free. Outer hex can't be tightened if inner nut is loose. Fits 1 3/16" square and 1 1/2" hex.

GA83-64 Adaptor. Used in hex drive of GA83 for 3:1 power ratio on Budd wheel inner cap nuts.

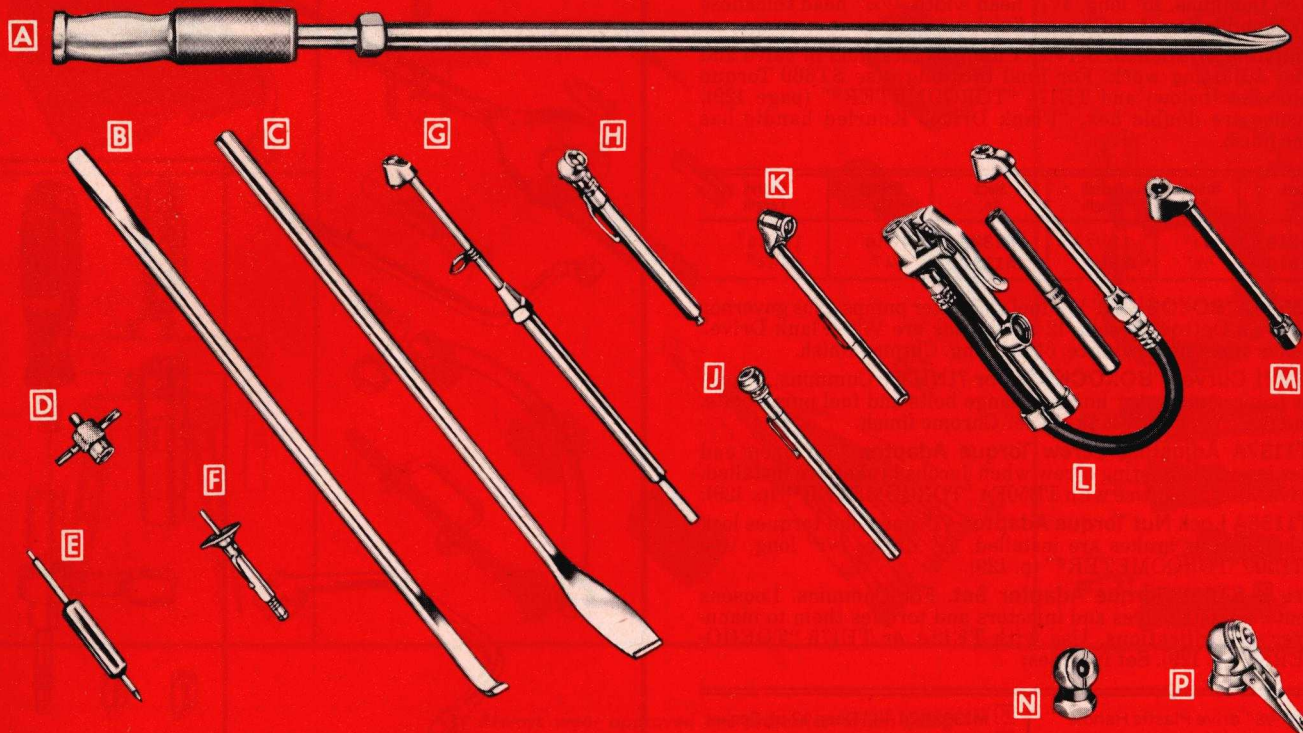
CAUTION: These units are to be used with impact wrenches. Approved eye protection should be worn.

[R] Budd Wheel Impact Sockets. Heavy walls for impact use. Grooved for Locking Ring (see Rings and Pins below). Black finish.

Wrench Size	3/4" Drive Sockets		1" Drive Sockets	
	Stock No.	Overall Length	Stock No.	Overall Length
1 1/2" hex	BW482	5"	BW483B	3"
1 3/16" sq.	BW626A	4"	BW726A	2 1/4"
1 3/4" hex	IM562	2 9/16"	IM563	3 7/8"
1 5/16" sq.	IM630	1 7/8"	IM730	2 1/8"

▲ Standard impact sockets with Budd Wheel applications.

IM182R IM182P IM182PP	Lock Ring for 3/4" Steel Pin for 3/4" Reinforced Plastic Pin for 3/4"	IM243 IM243P IM243PP	Lock Ring for 1" Steel Pin for 1" Reinforced Plastic Pin for 1"
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A TR200 Tire Bead Breaker. For bus, truck or tractor tires. Sliding hammer weighs 13 lbs. Stroke length is 16"; overall length is 46" closed, 62" expanded. *Always wear approved eye protection when using this tool.*

B TR100 Rim Tool. For use on split rims and rim lock rings. 19 $\frac{1}{8}$ " long with $\frac{9}{16}$ " and $\frac{5}{8}$ " wide ends. One end is angled, the other is straight.

C TR102 Tire Removing Tool. For drop center rims. 1 $\frac{3}{8}$ " wide, 18" long.

D GA143A Tire Valve Tool. 4 sections of tool remove or insert valve core, tap valve core threads, chase outside threads and extract broken valve cores. 1 $\frac{7}{8}$ " x 1 $\frac{3}{16}$ "

E TR104A Tire Valve Tool. One end of shaft has tapered left hand thread for broken valve core removal. Other end is slotted to fit all standard valve core tips. Plastic handle is $\frac{3}{8}$ " in diameter, 2" long.

F GA599 Tire Tread Depth Gauge. Measure to a depth of 1" in $\frac{1}{32}$ " units. Plastic body, aluminum probe and sliding gauge. Equipped with pocket clip.

G GA246 Tire Pressure Gauge. Calibrated in 1 psi increments to 60 psi and in 5 psi increments from 60 to 130 psi. Equipped with hanging ring. 13" long.

H YA106 Tire Pressure Gauge. For cars and light trucks. Calibrated in black markings on 2 sides in 1 psi units from 10-50 psi, and in red markings on 2 sides in 5 kPa units from 75-325 kPa. Pocket clip included.

GA315 Air-Liquid Tire Gauge. Calibrated in 1 psi increments with 10 to 50 psi range. Spring retracts indicator bar into gauge, causing pump action to expel tire liquid. Equipped with pocket clip. 5 $\frac{15}{16}$ " long.

J YA111A High Pressure Tire Gauge. Calibrated in 2 psi increments with range of 20 to 100 psi and 150 to 800 kPa (kilo-Pascals) in 10 kPa increments. Chrome plated, 5 $\frac{3}{4}$ " long.

J YA131 Tire Pressure Gauge. Designed for normal pressure applications. Calibrated in 1 psi increments with a 10 to 50 psi range and in 25 kPa (kilo-Pascals) increments in a 75 to 325 kPa range. Features a straight-on head for recessed valves. Chrome plated, 5 $\frac{1}{2}$ " long.

K YA804 Dual Foot High Pressure Tire Gauge. Calibrated in 2 psi increments with range of 20 to 120 psi and 150 to 800 kPa (kilo-Pascals) in increments of 10 kPa. Dual foot chuck for convenience. Chrome plated, 5 $\frac{3}{4}$ " long.

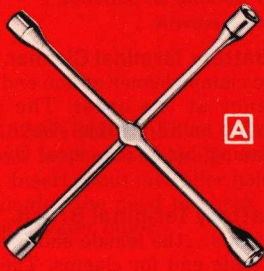
L GA477 Automatic Tire Gauge. For measurement and control of air pressure in car and truck tires. Has a dual foot chuck and 12" hose. Calibrated in 2 psi units from 12-120 psi.

GA478 Replacement Gauge Cartridge. Pictured with GA477 above.

M GA460 Dual Foot Air Chuck. Has dual foot so air pressure can be given at different angles if needed. $\frac{1}{4}$ " female pipe thread. 6 $\frac{1}{8}$ " long.

N GA296 Air Chuck. Equipped with $\frac{1}{4}$ " female pipe thread. Valve end offset to keep hose out of way during inflation. Rubber gasket prevents air leak, 1 $\frac{3}{8}$ " long.

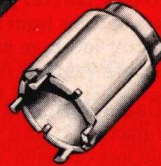
P YA173 Clip-on Air Chuck. Has spring-loaded, trigger-operated valve stem clip. $\frac{1}{4}$ "-18NPT female pipe threads. Maximum operating pressure is 200 psi.



A



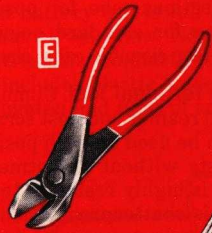
B



C



D



E



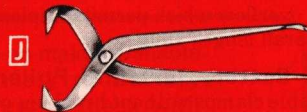
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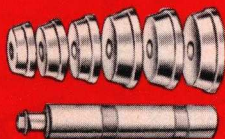
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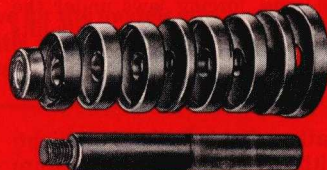
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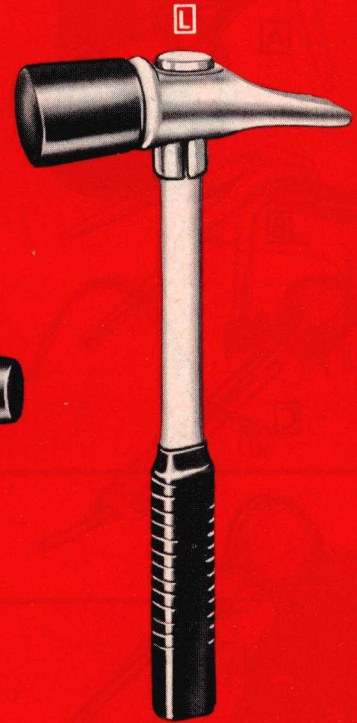
M



N



K



L

CAUTION: Wear approved eye protection when using striking tools.

A TR105B Lug-Nut Wrench. Each arm is 11½" long with sizes as follows: ¾", 13/16", 7/8" and 15/16".

TRM100 Metric Lug-Nut Wrench. Each arm is 15½" long with sizes as follows: 17.5 mm, 18 mm, 19 mm and 21 mm.

TR106 Truck Lug-Nut Wrench. Each arm is 27½" long with sizes as follows: 13/16" square, plus 1½", 1¼" and 1½" hex.

B DW402 "Dayton" Lug-Nut Socket. ¾" drive with 1¼" hex. Heavy wall construction. 5" long. Black finish. *For impact use — wear approved eye protection.*

IM182R Lock Ring for above.

IM182P Steel Pin for above.

IM182PP Reinforced Plastic Pin for above.

C S8695A Lug-Nut Socket. ½" drive with slots fitting over 3/32" pins in nut. Removes front wheel assemblies on 4-wheel drive trucks with DANA axles. *For hand use only.* 4" long. Chrome finish.

D A98A Lug-Nut Socket. ½" drive is recessed between two 6-point wrench openings; ¾" and 13/16". Length: 2¾"; dia: 13/16". Black finish. *For impact use — wear approved eye protection.*

E 388CP Cotter Pin Pliers. Designed to pull cotter pins with ease. Also a curved diagonal cutter. Jaw width 1½"; jaw length 19/16"; 7¾" long. Plastic coated handles, black oxide finish.

F CP3A Cotter Pin Puller. Easily pulls large pins. Blade is heat-treated for maximum strength. Length 8".

G S9094B Cotter Pin Puller. Pin is removed by hitting anvil sharply. Tough steel hook is replaceable if necessary. Side handle assures firm grip. 10" long.

S9094A2X Replacement Hook & Rivet Set.

H A180A Wheel Bearing Packer. Retainer nut has ¾" neck. Bore is coarse-threaded to within ½" of end of nut. ½" unthreaded section allows nut to seat on screw. Also includes dust cover to protect Packer.

J GCP10 Grease & Hub Cap Tool. Tapered jaws of tool fit behind the crimped edge of grease cap. One handle edge is designed for prying loose hub caps.

K BF620A Rubber Mallet. Solid rubber head is 3¾" long, 2¼" diameter. Hardwood 11" handle. Ideal for body work, replacing hub caps, etc.

BF623 Rubber Mallet. Similar to BF620A above. Head 3" long, 1½" dia.

L BH101 (6 lb.) Tire Tool Hammer. Ideal for installing rim rings on split rims. 18" fiberglass handle with black vinyl grip. Head has quick removal nylon attachment.

BH101-2R Replacement Handle.

M A1307 Front Wheel Bearing Race Driver Set. Includes:

A1306-1 Handle	A1306-4 1.965"
Collars:	A1306-5 2.325"
A1306-2 1.565"	A1306-6 2.555"
A1306-3 1.775"	A1306-7 2.470"

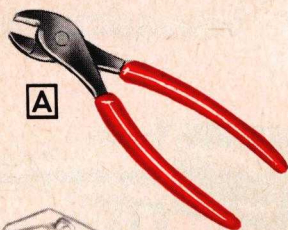
N A1417C Wheel Seal Driver Set. Various units fit both front and rear seals. Includes:

A14-1 Handle 7½"	A14P40 Pilot Plate 1¼"	A14-26 2½"
Driver Plates:	A14-7 25/16"	A14-7A 25/8"
A14-24 2"	A14D78 27/16"	A14D86 211/16"
A14-25 2¼"		A14-16A 215/16"

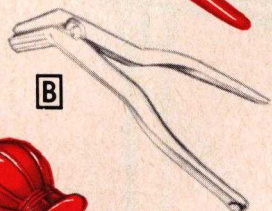
A1417CB Set. Set in KRA40 Metal Box.

Other Tire/Wheel Tools on pages 219 and 220.

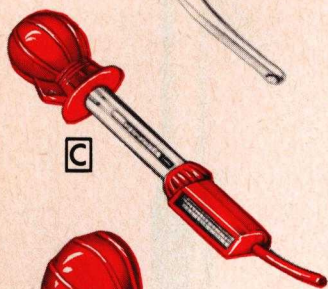
CAUTION: Always wear approved eye protection when working on batteries.



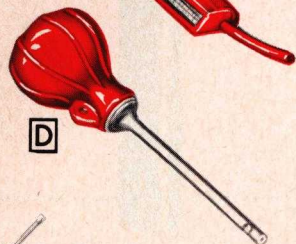
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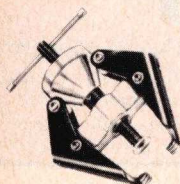
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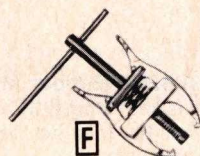
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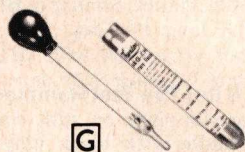
D



E



F



G

A 208CP Angle-Nose Battery Pliers. Rounded nose protects battery from damage. Jaws offset 30° for better leverage and turning angle. Overall length 7¾"

B B260 Battery Cable Terminal Pliers. Spreads and cleans battery clamp without damage. ⅝" double-hex wrench opening on one handle for DELCO side-saddle bolts. Pry bar on the other handle. Overall length 7⅞" Jaw length is 1⅞"

C BB4A Hydrometer-Thermometer. Three-color float gauge indicates battery condition as "Good," "Fair" or "Recharge." Hydrometer has a range of 1,060 to 1,320 which covers all test conditions. Recessed thermometer has a temperature range from 0-160 degrees and specific gravity corrections. 13½" long.

D BB6 Battery Filler Bulb. Red rubber bulb has a fluid capacity of 6 ounces. The straight stem is made from hard rubber and features an overflow which permits dripless fillings. Overall length 10½"

E GA486 Battery Terminal Puller. Removes cable clamps without breaking or damaging battery posts. To use, tighten the knurled cone, forcing jaws under the cable clamps. The puller screw gently lifts terminal. Also removes badly corroded clamps of nearly any style within its size range. 4" long.

F CJ92 Battery Cable Puller. Pulls tightest cable without damage. Finger pressure separates jaws. Self-locking jaws securely grip terminal. Jaw spread is 1¾"

G GA303A Battery Tester. Number of balls floating in glass tube indicates state of battery charge. Rubber bulb draws battery solution into tube. Also includes plastic carrying tube. Overall length 5¾"

H YA311 Side Terminal Adaptor Set. Includes two battery charge and boost adaptors for use on all O.E.M. and replacement side terminal batteries. Slip on installation. 500 amp capacity.

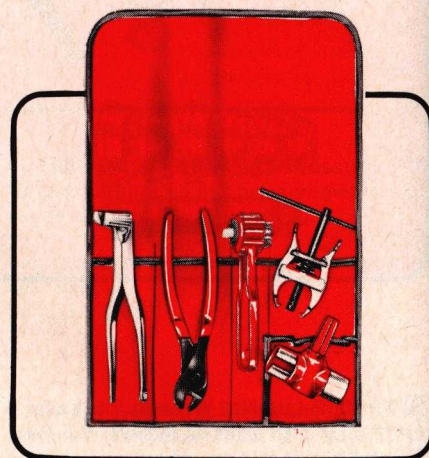
J BTC10 Side Terminal Battery Cleaner. Cutters on one side clean battery contacts; brush on the other side cleans cable terminals. Overall length 4½"

K BTC9A Battery Terminal Cleaner. Has a retractable clamp cleaner at one end and a post cleaner at the other. The post cleaner features an adjustable sleeve that controls cleaning blade pressure. Overall length 5¼"

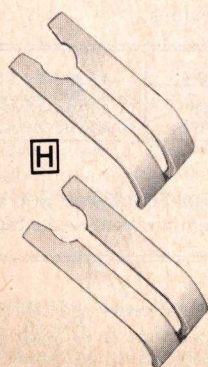
L BTC3 Battery Terminal Brush. Two cleaning brushes...the female end for terminals, the male end for clamps. The red plastic case is especially resistant to battery acid. Stiff bristled wire brushes are spaced to clean quickly and thoroughly. Length 3⅞"

M BTC7 Battery Mate. Red plastic body has 3 cleaning sections: one for positive battery posts, one for standard negative posts and the third for cleaning cable clamps.

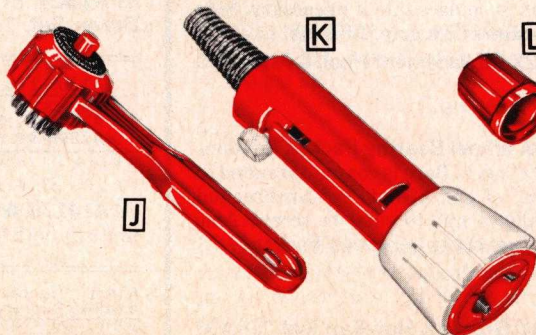
N BTC8 Battery Terminal Tool. Combines a battery terminal reamer and post scraper into one unit. Can be used on both positive and negative posts without adjustments. Red plastic body is highly resistant to oils and grease, plus is shatterproof when exposed to temperature extremes. 3½" long.



2005BSK Battery Service Kit. Includes the 208CP Angle-Nose Battery Pliers; B260 Battery Cable Terminal Pliers; BTC7 Battery Mate; BTC10 Side Terminal Battery Cleaner; and the CJ92 Battery Cable Puller. Contents are protected in a C56 Vinyl Kit Bag (16" x 10¾").



H



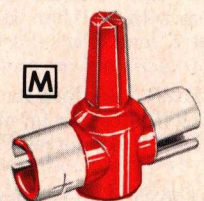
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L



M



N

SERVICE TOOLS

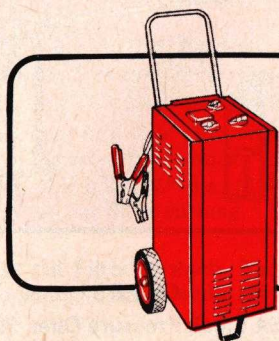
CAUTION: Always wear approved eye protection when working on batteries.

A GA207 Battery Filler. Fills battery to correct level automatically, with no overflow. Insert spout into filler hole and press. Eliminates the need to check water level or refill water bulbs.

B YA604 Dry Charged Battery Filler. Helps eliminate spills, burns and damage to clothing. Features "cell eye" to indicate when battery cell is full and thumb valve to shut off acid flow. Non-corrosive plastic construction. Connects to "acid-pak" hose and includes plastic holder for securing to corrugated end flaps of acid-pak carton.

C BL1A Battery Carrier. Carries the new DELCO batteries as well as standard post-type. Rubber pads grip battery by the sides instead of the ends, and will hold sizes from 5" to 7" wide. Cross member is notched to prevent pads from slipping once gripped to battery. A plastic handle offers a firm hand hold.

D GA154 Battery Carrier Strap. Strap clamp fits over battery terminals and exerts pressure to securely hold battery as lifting pressure is applied. Clamps swivel to conform various terminal locations. Overall length is 18"



Snap-on makes available a variety of Battery Chargers. Check with your Snap-on representative for the models currently available in your area.

E STARTING UNITS

Start most 6-24 volt vehicles in temperature extremes. Auto sensor automatically senses polarity, voltage and shorts... then generator output adjusts accordingly. Each unit features amperage neutralizer, ammeter (300 Amp), and 30' of heavy-duty welding cables with color-coded battery clips.

EG800. 8 HP unit develops 300 Amps cranking power (225 peak Amps at 12 V). Equipped with 2 generators and features recoil starting with electric assist. Mounting space: 24" L x 23" W.
EG1000. 10 HP unit develops 500 Amps cranking power (270 peak Amps at 12 V). Equipped with 2 generators and features recoil starting with electric assist. Mounting space: 24" L x 23" W.
EG1600. 16 HP unit develops 600 Amps cranking power (500 peak Amps at 12 V and 250 peak Amps at 24 V). Equipped with 4 generators and electric start. Mounting space: 33" L x 27" W.

HEADLAMP AIMING KITS

B4ACKA Complete Kit. Designed to aim all sealed beam lamps including rectangular as well as round lamps. Includes the following components plus easy-to-read instructions:

- F B4A1, B4A2 Headlamp Aimers.** Driver and passenger sides.
- G B4A4 Small Adaptors.** For 5 1/4" circular lamps, with aiming pads.
- H B4A5 Rectangular Adaptors.** For 4" x 6 1/2" lamps, with aiming pads. (Four lamp system).
- J B4A6 Floor Adaptors.** Dual purpose: determine floor shape to compensate for uneven surfaces, and to check and calibrate aimers for accuracy.
- K B4A3 Large Adaptors.** For 7" circular lamps, with aiming pads.
- L B4A9 Light Meter.** Accurately measures all headlamps for candle power and indicates other electrical problems.
- M B4A10 Rectangular Adaptors.** For 5 1/2" x 8" rectangular headlamps. (Two lamp system).
- N B4A8 Storage Case.** Protects all kit components.

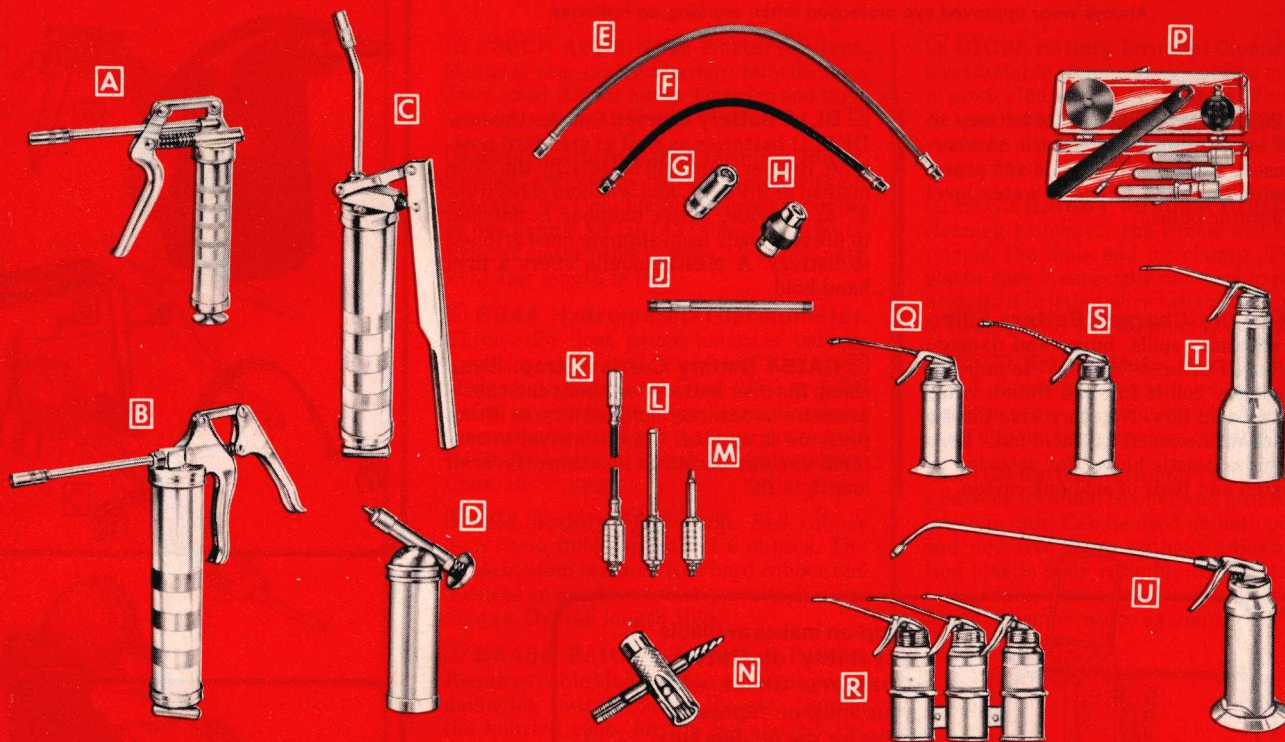
B4AK4A Headlamp Aiming Kit. Includes all of the above except the B4A9 Light Meter.

B4A7 Optional Aiming Screen. (Not shown). For aiming headlamps on vehicles and motor bikes where mechanical aiming is not possible.

P HE52A Headlamp Spring Tool. Not included in above set, but is useful in removing and installing headlamp alignment springs. 1/8" diameter shank with hook. Shank is secured in a black plastic solvent resistant handle. Overall length 7"

Battery/Headlamp





GREASE GUNS

Grease Guns. All are steel with zinc plating. Inner spring chamber can be either cartridge or bulk loaded.

A GA471 Midget Grease Gun. 3 oz. cap. 8¼" nozzle.

B GA472 Grease Gun. 14 oz. cap. 13¼" nozzle.

C GA473A Grease Gun. 14 oz. cap. Overall length 19¼". May also be loaded with bulk cartridge.

D GA419 Grease Gun. 3 oz. cap. Fits all flush-type fittings, especially good for FAR-70B Air Ratchet (p. 163). Spring returns plunger.

GREASE GUN ACCESSORIES

Designed to add to the versatility of the GA471, GA472 and GA473A Grease Guns above.

E GA472-9 POLYBRAID Hose. Features brass end fittings and is oil, grease and solvent resistant. Its flexibility provides easy access. 18" long overall.

F GA472-3 POLYBRAID Hose. Same design as GA472-9 above, except 12" long.

G GA472-2 Grease Fitting Coupler. Push-on design with neoprene nipple and ball. Features a spring check valve.

H YA807 Locking Grease Fitting Coupler. Fits ⅝" NPT extensions. Works on both hand or air powered grease guns.

J GA472-1 Straight Pipe. Flat surfaces on one end for easier turning with pliers or wrench. Overall length is 5½".

GREASE GUN ADAPTORS

Provide easy access to grease fittings. All adaptors feature a locking sleeve to hold the adaptor securely in place and are made of steel and are zinc plated.

K YA803 Flexible Adaptor. 16" adaptor with 12" POLYBRAID flex hose for use in bending around obstructions. Has a pressure lock hydraulic coupler. Working pressure of 6,000 psi and burst pressure of 12,000 psi.

L YA802 Push-Type Adaptor. 5½" adaptor for access to universal joints and bearings located in positions where lateral movement necessary for release of couplers is impossible.

M YA801 Needle-Type Adaptor. 4⅞" adaptor for access to universal joint fittings as well as water pumps and metal covered springs.

SERVICE TOOLS

N GA22A Automotive Grease Fitting Tool. ⅜" flare nut socket services most grease fittings. Includes a reamer tip and a tap.

P GA417 Upper Arm Lube Kit. Includes wrench, spinner, lube adaptor and 3 air vent channels for servicing upper arm cross shaft bushings on 1965-current Fords and Thunderbirds. Eliminates need to drill and tap bushing to cut tower sheet metal for access.

OILERS

Q OC5A Small Pressure Oiler. 5½" long tapered spout has screw-on tip. Bronze finish. 1⅞" O.D. Includes base holder. 5 oz. capacity.

R OC40 Oiler Set. Includes three OC5A oilers. Bronze finish. Contained in a triplet-type wall holder. 15 oz. total capacity.

S OCF5 Small Pressure Oiler. Same design as OC5A above, except with flexible spout.

OCH5 Oiler Holder (not shown). Fastens to wall or bench to hold OC5A or OCF5.

T OC16 Pressure Oiler. Delivers single drop or continuous stream of oil. O.D. top is 2" O.D. bottom is 3". One pint capacity.

U OC612 Long Spout Oiler. Equipped with 12" spout and detachable cone tip. Flared base. 6 oz. capacity.

SEALING COMPOUND

A NEVER-SEEZ Sealing Compound. Retains properties from -297°F to +2000°F under pressure to 32,000 psi. Not an electrolyte, so it prevents pitting. Can't be washed or burned off.

- NS8.** 1/2 lb. can w/brush.
- NS16.** 1 lb. aerosol can.
- NS40.** 1/4 lb. can.
- NS160.** 1 lb. can.
- NS168.** 8 lb. can.

OIL FILTER WRENCHES

Spring steel bands surround oil filters and tighten as handles are pulled. Handles have vinyl grips and swivel to clear obstructions.

- B GA333.** For 3" to 3 3/8" dia. filters.
- B GA340.** For 3 1/2" to 3 7/8" dia. filters.
- B YA341.** For 4 1/8"-7 7/16" dia. filters.
- C YA342.** For 4 5/8"-5 1/4" dia. filters. No handle. 1/2" square drive opening.
- C YA828.** For 2.9"-3.5" dia. filters. No handle. 1/2" square drive opening.
- D GA339 Oil Filter Wrench.** Three 1/2" square openings. Withstands 125 lb. ft. 4 7/8" wide.

E A91B Strap Wrench. For irregular shaped objects 1" to 6" in diameter. Has two square drive openings...one is 3/8" and the other is 1/2."

A91A2A. Replacement Strap only.

F GA96 Transmission Filler. 8 1/2" oval funnel with puncture device and filter screen. 30" long. Copper finish.

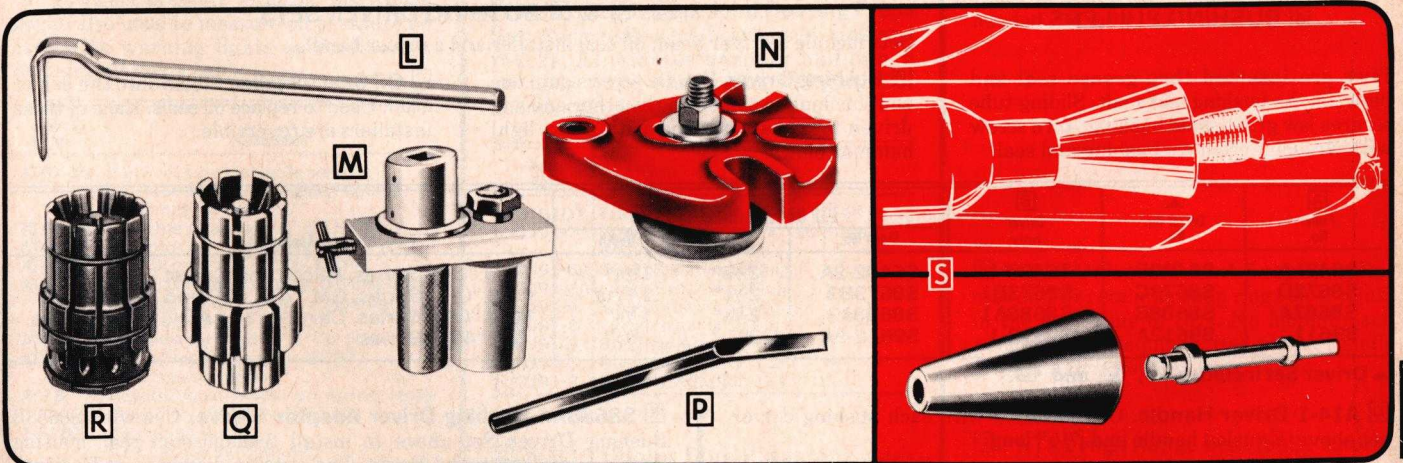
G GA276 Flip Spout. For 1, 4 or 5 quart cans. Has gripper for can rim, cutting spear, leakproof gasket. 3/4" I.D.

H GA439 Oil Spout. For 1 quart to 1 gallon cans. 8 1/2" long. Zinc plated.

J CPT110A Drain Plug Socket. For VW. 17 mm single hex broach for standard transmission drain plugs. 3/8" drive, 1" long. Chrome finish.

K S5902 Oil/Transmission Plug Wrench. For VW. One end has 17 mm single hex, the other is 21 mm double hex "BOXOCKET". 10 1/4" long. Chrome finish.

MUFFLER/TAILOPIPE/EXHAUST



CAUTION: ▲ Always wear approved eye protection when using striking and pneumatic tools.

L ▲ GA84A Muffer-Tailpipe Tool. Is driven between muffer and tailpipe to break bond. 1/2" diameter, 11 1/4" long.

M A215 Muffer-Tailpipe Tool. For smoothing pipe diameter ridges. Pipe slides over smooth roller. Tighten T-handle which draws pipe and nut together. 1/2" drive opening in roller is turned to smooth out ridges.

N YA831 Guide Plate. Guides 5/16" drill when removing broken manifold studs. Rubber grommet locks guide onto either 2-or 3-bolt manifolds. After drilling, simply remove bolt with stud extractor.

P ▲ PC32A Muffer Tool. Cuts muffer sleeves and tailpipes, curling metal away from user. Offset head allows for knuckle clearance. 8 1/4" long, 1/2" hex stock.

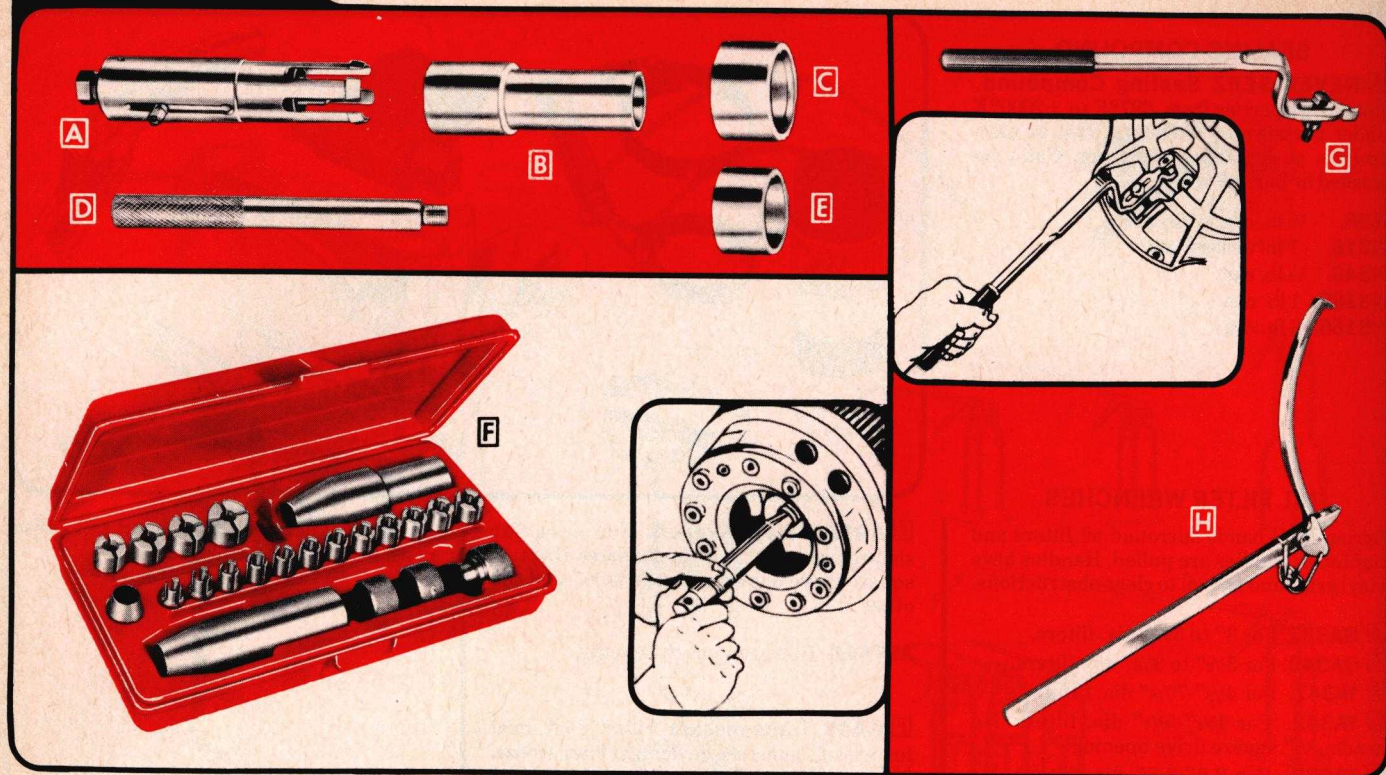
Q TC55 Tailpipe Expander. For pipes 1 1/2"-2 1/2" in diameter. Removes crimps caused by U-bolt clamps. Hex nut inside turns to remove crimps. 5" long.

R TC56 Tailpipe Expander. Similar to TC55 above but for 2 1/2"-3 1/4" size pipes.

S ▲ PH770 Muffer-Tailpipe Expander Set. Use with SNAP-ON PH45A or PH50D Air Hammers (p. 164). To use, insert driver into cone. Position the small end of the cone into the end of the pipe. A few air hammer blows will start forcing the cone into the pipe. The more hammer blows, the more expansion.

PH77 Expander Cone. 5 1/4" long, O.D. diameters: small end 1 1/8", large end 3"

PH79 Cone Driver. 5/8" diameter.



CAUTION: Always wear approved eye protection when using puller and driver equipment.

BUSHING PULLERS and DRIVERS

Designed to easily remove or replace transmission rear extension housing bushing and oil seal on most Ford, GM, Chrysler and AMC

automatic transmissions. Refer to chart below for applications and the various puller and driver combinations.

[A] BUSHING PULLERS

Jaws are inserted thru grease seal and between the bushing and shaft. Sliding tube secures jaw grip behind bushing. Turn screw with wrench to remove bushing and seal.

[B], [C] & [D] BUSHING DRIVER SETS

Sets include a driver head, oil seal installer and a driver handle.

[B] Bushing Driver. Handle screws onto one end; bushing is placed on the other end and driven into shaft housing with a few light hammer blows.

[C] Oil Seal Installer. Slides onto the driver head. Used to replace oil seals. Each of these installers are reversible.

[A] Puller No.	Driver Set No.	[B] Driver only	[C] Oil Seal Installer only			Application
			Stock No.	O.D.	Depth	
S6401A	S6402B	S6402-1	S6402-2A	2 ⁵ / ₈ "	1 ⁵ / ₈ "	Ford "C-3" Series, Falcon and Comet Ford "C-4" Series, GM "200, 350 and 375" Series Ford "C-6" Series, Chrysler and AMC "727" Series GM "400" Series
S8672D	S8673C	S8673B1	S8673B3	2 ³ / ₄ "	1 ¹⁵ / ₁₆ "	
S8687A	S8688B	S8688A1	S8688A3	2 ³ / ₄ "	1 ³ / ₄ "	
S9611	S9612A	S9612-1	S9612-2A	3"	3/ ₄ "	

▲ Driver Set includes [B], [C] and [D].

[D] A14-1 Driver Handle. One included with each bushing driver set above. Knurled handle end. 7¹/₈" long.

S8673-2 Optional Driver Handle. 16" long version of A14-1 above.

[E] S8688A4 Bushing Driver Adaptor Sleeve. Use with S8688B Bushing Driver Set above to install transmission rear housing bushings on late model Fords. The outside diameter is 2"; depth is 1"

[F] A37M CLUTCH ALIGNER SET

For cars and trucks with standard transmissions, including many foreign cars. The set provides quick, accurate aligning service

for the complete range of automotive single disc clutches. Neatly packaged in the PB21 Plastic Case.

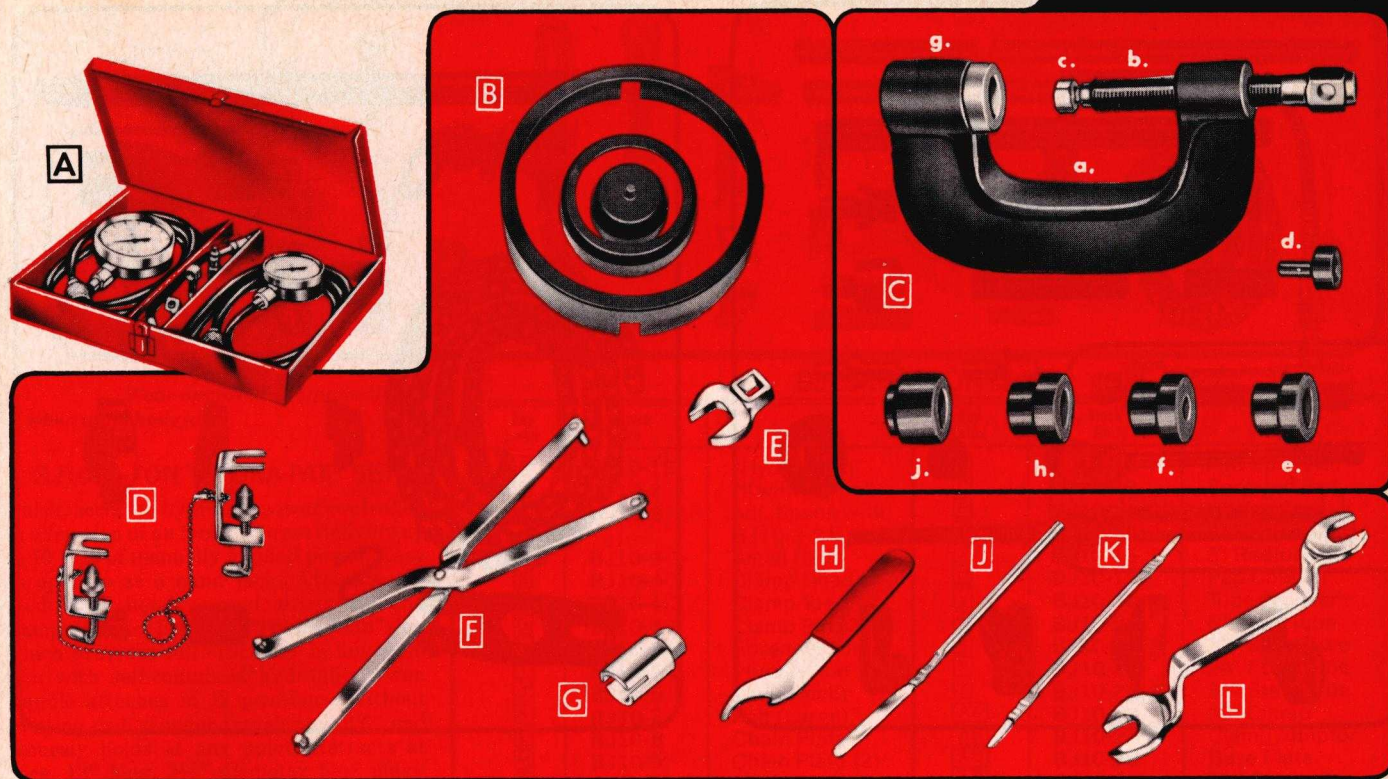
Stock No.	Description	Collet No.	Collet Size	Collet No.	Collet Size
A37-3	Rod and Taper Bushing	A37-34	.465"	A37-18	.718"
A37-4C	Centralizer Knob	A37-30	.500"	A37-10	.750"
A37-5A	Centralizer Nut	A37-25	.562"	A37-13	.786"
A37-15A	Centralizer Collar	A37-31	.578"	A37-27	.812"
A37-22	Centralizer Locater	A37-11	.590"	A37-33	.875"
A37-23B	Centralizer Tube, 1 ³ / ₁₆ "-16	A37-9	.625"	A37-14	.984"
A37-2	1 ¹ / ₄ " Sleeve	A37-28	.656"	A37-29	1.000"
A37-6	1 ⁵ / ₈ " Sleeve	A37-12	.668"	A37-17	1.181"

[G] GA454 Spicer Truck Clutch Adjusting Wrench. For internal adjustment of "Spicer" angle-spring and multiple lever clutches. Eliminates need for pry bars that could damage clutch parts. Chrome plated with vinyl grip. 15" long.

[H] A144 Flywheel Turner. Use when replacing clutch pressure plate. Turns flywheel to predetermined point that might be bypassed when "bumping" starter. Grips flywheel between serrated handle tip and swinging arm tip. Double spring tension holds tool in wheel, freeing hands. Arms fold for storage. Handle is 11³/₄" long.

SERVICE TOOLS

Transmission



A AT67UB Automatic Transmission Oil Pressure Gauge Set. $3\frac{1}{2}$ " dial on large gauge checks oil pressure on most automatic transmissions. Small gauge tests throttle and governor pressure with $2\frac{1}{2}$ " dial. Small gauge also used to measure oil pressure on cars with warning lights on dashboard. Includes all items below:

Stock No.	Description
AT67-1C	Oil Pressure Gauge Assembly: 6' Hose and Female Quick Coupler Assembly (0-300 psi/ 200-2000kPa)
AT67-2B	Flexible Adaptor ($\frac{1}{8}$ "-27 NPT)
AT67-5	Adaptor for Chevrolet ($\frac{1}{8}$ "-27 NPT)
AT67-8	45° Street "L" ($\frac{1}{8}$ "-27 NPT)
AT67-11C	Small Gauge Assembly: 6' Hose and Female Quick Coupler Assembly (0-100 psi/ 100-700 kPa)
AT67-12A	Adaptor for Ford ($\frac{5}{16}$ "-32 NS)
AT77	Jatco Hose Assembly (BSPT) (For most imports)
AT78	Toyota/Volvo/A-40/Ison Warner Hose Assembly ($\frac{5}{16}$ "-24 UNF-2A)
1-7280	Reducing Bushing ($\frac{1}{4}$ " Male, $\frac{1}{8}$ " Female)
1-7380	Reducing Bushing ($\frac{3}{8}$ " Male, $\frac{1}{8}$ " Female)
KRA141	Metal Box

G GA393 Lip Seal Protector Kit. Three piece kit for 1966-current Chevrolet, Oldsmobile, Pontiac and Cadillac autos. Assemble forward, intermediate and direct clutch pistons on GM400 Series Turbo HydraMatic Transmissions in above cars. Minimize the possibility of cutting lip seals while installing the clutch piston into the clutch housing of the automatic transmission.

CAUTION: Always wear approved eye protection when using pulling equipment.

C CJ91D Universal Joint Bearing Press Set. For needle-type bearings on cars and trucks. Eliminates hammer and punch methods which could result in injury. Set includes the items listed below:

Stock No.	Description
a. CJ91D1	Frame, 10" long, thread is $6\frac{3}{8}$ " long
b. CJ91-7	Pressure Screw, $3\frac{3}{4}$ "-16 thread, $8\frac{1}{2}$ " long
c. CJ91-6A	Small Expansion Plug
d. CJ91-2A	Large Expansion Plug
e. CJ91-4	Small Bearing Driver
f. CJ91-8	Large Bearing Driver
g. CJ91-5	Bushing Adaptor, $\frac{31}{32}$ " I.D.
h. CJ91-3	Bushing Adaptor, $1\frac{1}{32}$ " I.D.
j. CJ91-9	Bushing Adaptor, $1\frac{5}{16}$ " I.D.

D YA319 Cooler Line Plugs. Provides faucet valve-like seal for dripping transmission cooler lines as well as radiator and fuel lines. Fits all male and female $\frac{1}{4}$ ", $\frac{5}{16}$ " and $\frac{3}{8}$ " lines. Includes two plugs connected by a 16" bead chain. Adjustment screws feature plastic grips. Zinc lustrum finish.

E S8696B Ford Crowfoot Wrench. For vacuum control unit on Ford transmissions. $\frac{3}{8}$ " drive with $\frac{3}{4}$ " crowfoot opening. Use with FX6 and FX11 Extensions (page 54) and $\frac{3}{8}$ " drive ratchet, or Snap-on TORQOMETER® (page 129). $1\frac{29}{32}$ " long, $1\frac{1}{16}$ " wide.

F A176 Differential Adjusting Wrench. For most differentials where $\frac{9}{32}$ " and $\frac{17}{32}$ " adjustment nuts are found. Also useful on transmissions, steering gears and some water pumps where spanner wrenches are needed. 10" long.

G S5925A VW Clutch Adjusting Socket. For 1966 to current VW standard transmissions. Has clutch cable clearance hole of .312" with .156" slots for wing nut. 14 mm male hex, 1.53" long, .835" O.D.

H YA118 Universal Joint Snap Ring Remover. For retaining snap rings on U-joints in the drive line of cars. No hammer and punch or vise required. Red plastic handle grip for a firm hold. 6" long.

J PRT21 High Range Seal Tool. Features flat ($2\frac{1}{2}$ " x $\frac{1}{2}$ ") tempered spring steel blade for use in positioning high range seals on Ford, GM and Chrysler transmissions. $7\frac{1}{2}$ " long with $\frac{1}{4}$ " body.

K PRT22 High Range Seal Tool. Features loop ($\frac{3}{4}$ " long) of .015" high carbon wire at both ends of tool. For use in positioning forward clutch piston seals on Ford, GM and Chrysler transmissions. $6\frac{1}{2}$ " long with $\frac{1}{4}$ " body.

L S9552A Vacuum Modulator Control Wrench. Wrench openings are $\frac{7}{8}$ " and 1" Offset heads are $\frac{3}{16}$ " thick. Length: $8\frac{1}{2}$ "

GROUP 1



BJ4B Set. Includes all BJ3A tools in Group 1, plus all tools in Group 2. The BJ4B 4-Ton **Body Jack** is designed to fill all your needs... from pushing to pulling to spreading. Virtually every tool needed for body jack operation is included. The **Ram** is slender for close working conditions. The 6' rubber **Hose** with **Quick**

GROUP 1 TOOLS

(Include items A thru Q below:)

- A** BJ42X Ram, Pump and Hose Assembly. Ram. Free-flowing open channels. Overall length is 8 $\frac{7}{8}$ " with a 4" maximum stroke. Pump. Overload safety device inside mechanism. Hose. $\frac{1}{4}$ " I.D., oil-resistant rubber with steel mesh. Quick Coupler. Permits removal of hose without fluid loss from Ram.
- B** BJ4A18A Extension Tube. 3" long.
- C** BJ4A19A Extension Tube. 5" long.
- D** BJ4A20A Extension Tube. 10" long.
- E** BJ4A21A Extension Tube. 15" long.
- F, G, H, I** BJ4A24A Tube Adaptor Set.
- F** BJ4A24A1 Adaptor.
- G** BJ4A24A2 Adaptor.
- H** BJ4A24A3 Quick Coupler. (2 included).
- I** BJ4A24A4 Adaptor.
- K** BJ4-14 Pad. Serrated face, for end of extension tube.
- L** BJ4-15 Rubber Pad (2 included).
- M** BJ4-16 Flat Spreader Toe. Serrated face.
- N** BJ4-10 Base. Flat pressure surface.
- P** BJ4-11 "V" Base. For pressing against protruding bolts.
- Q** BJ4-12 Flat Spreader Toe. Works in recesses.

GROUP 2



Coupler offers mobility and convenience. Thread size is 1 $\frac{1}{16}$ " x 14. "Starter" and "Complete" sets are available depending upon your scope of operation and budget. Your *Snap-on* representative can offer his assistance in helping you decide which set is best for you at this time.

GROUP 2 TOOLS

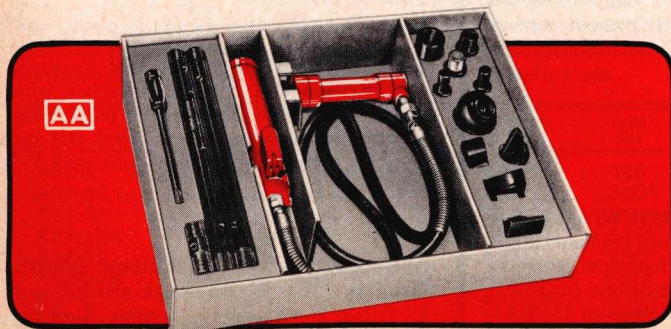
(Include items R thru Z below:)

- R** BJ4A22A Extension Tube. 20" long.
- S** BJ4-6 Fender Clamp. (2 included). Flexible linkage. Has milled jaws to grip onto metal and fender head.
- T** BJ4-7 Spreader. 3" spread. Screws into Ram. Gets into deep sections.
- U** BJ4-8 Adjustable Body Spoon. Quickly attaches. Blade fully adjustable.
- V** BJ4-13 Tapered Spreader Toe. Serrated face to prevent slipping.
- W** BJ4-23 Ram Base or Pad. Curved 4" radius.
- X** BJ4-5 Pull Jack. Includes the following:
 - BJ4-5-1 Puller Cap.
 - BJ4-5-2 Yoke.
 - BJ4-5-3A Cam-Alloy Chain. 7' long.
 - BJ4-5-4 "S" Hook. (2 included).
 - BJ4-5-5 Angle Iron. (2 included).
 - BJ4-5-6 Yoke Pin. (2 included).
- Y** BJ4-17 Tube Coupling. (3 included).
- Z** BJ4-9 Internal Connector. Attaches pads to Ram base.

CAUTION: Wear approved eye protection when using body jacks.

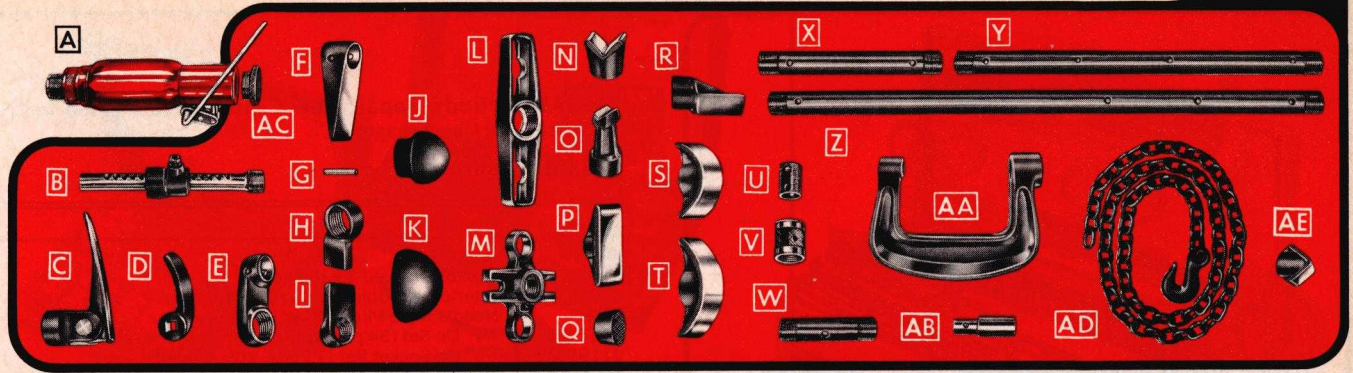
BJ3A STARTER SET

AA BJ3A Starter Set. An ideal "Starter" Set for body repair work. Includes all tools in Group 1 above. As your scope of operation increases, build up to the BJ4B Set by adding set components from Group 2.



10-TON JACK SET

Body



CAUTION: Wear approved eye protection when using body jacks.

BJ1010-TON "HYDRA-PAK" SET

Quick, accurate hydraulic power controlled to a fraction of an inch. This set delivers up to 10 tons of manually applied power. Easy to operate as a hand jack. Attachments push, pull, bend, spread, press, lift and clamp. Includes **BJ10-1E "Hydra Ram"** (A) which provides full efficiency in any position with self-contained hydraulic power. Handle attaches in 12 positions. Without twisting pad, plunger travels to full 6" and securely holds at any point. Retracts at once. 12" long, 3½" diameter, 5⅞" maximum stroke. Also includes the **BJ10-2 "Kwik tension"** (B) which provides 8" of extension lift with 14 length adjustments. And the **BJ10-3 Adjustable Spoon** (C) slips into restricted spots... spoon blades attach in 12 different positions.

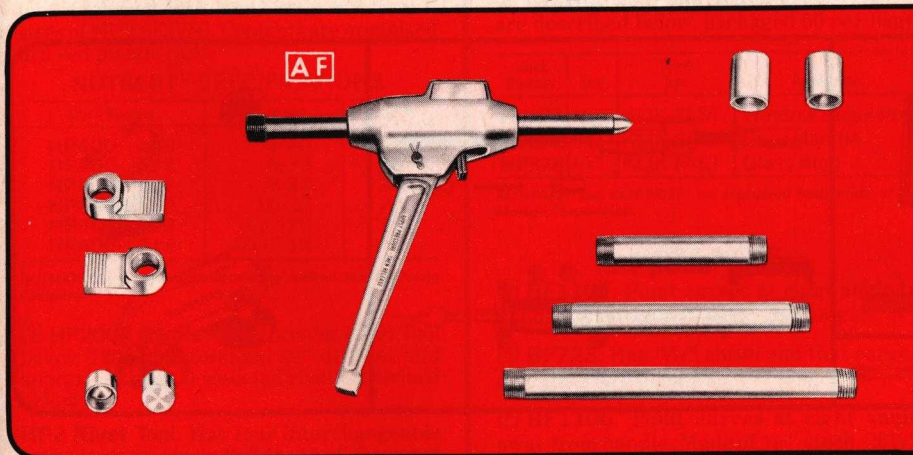
BJ10 SET CONTENTS

Key Letter	Stock No.	Description	Key Letter	Stock No.	Description
A	BJ10-1E	"Hydra-Ram"	P	BJ10-12	Flat Base Pad
B	BJ10-2	"Kwik tension"	Q	BJ10-13	Serrated Pad
C	BJ10-3	Adj. Spoon with BJ10-3-2 Blade	R	BJ10-14	Wedge End
D	BJ10-3-3	Small Bade	S	BJ10-15	3" Radius Pad
E	BJ10-4-1	Clamp Head	T	BJ10-16	5" Radius Pad
F	BJ10-4-2	Clamp Toe	U	BJ10-17	Pad Coupler
G	BJ10-4-3	Clamp Pin (2)	V	BJ10-18	Tube Coupler
H	BJ10-5-1	Spreader Toe	W	BJ10-21	6" Steel Tube
I	BJ10-5-2	Plunger Toe	X	BJ10-22	12" Steel Tube
J	BJ10-6	Pad (Small)	Y	BJ10-23	24" Steel Tube
K	BJ10-7	Pad (Large)	Z	BJ10-24	36" Steel Tube
L	BJ10-8	Chain Plate	AA	BJ10-27	"C" Clamp
M	BJ10-9	Chain Plate (2)	AB	BJ10-27-1	Clamp Adaptor
N	BJ10-10	90° V-Base	AC	BJ10-28	Base Plate
O	BJ10-11	90° V-Base (2)	AD	BJ10-29A	¾" Chain (2)
			AE	BJ10-31	Angle Base Pad

Extension Tubes and Attachments. Made from seamless steel tubing. Tested to exceed rated capacity of Hydra-Ram. Tubes attach with free-turning threads. Clamps attach

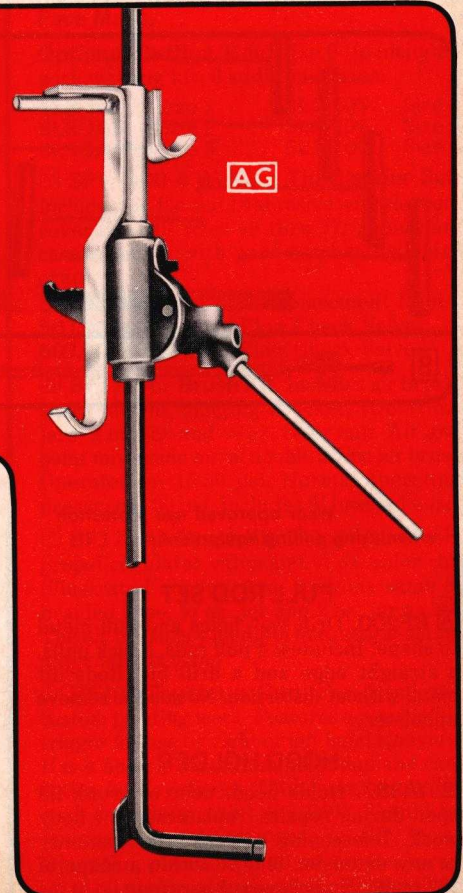
securely with lock pins. All have thread size of 1½"-12 except; BJ10-4-1, BJ10-5-1, BJ10-8 and BJ10-27 with thread sizes of 1⅞"-12.

1½-TON JACK SETS



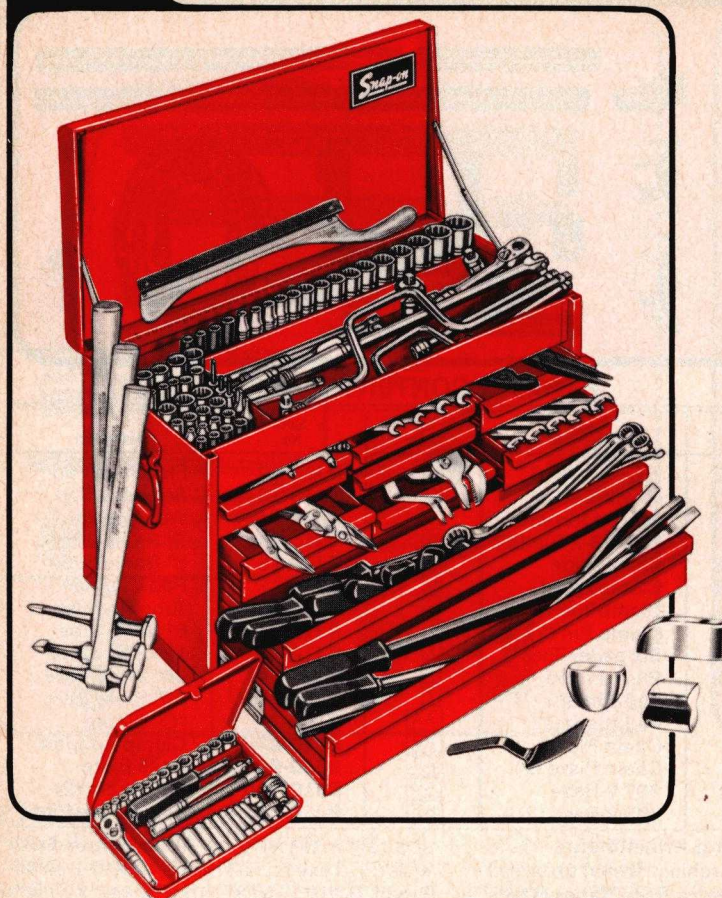
[AF] BM100A Body Jack Set. A compact, yet heavy-duty jack set capable of exerting up to 3,000 pounds of pressure. Pushes, pulls and handles a multitude of body repairs. Has other applications for farm, service station, automotive welding and fabrication needs. The jack is threaded at both ends to accommodate three included extension tubes. The ¾" pipe thread is compatible with other body jack accessories.

The BM100A Body Jack Set, shown above, contains a jack head and 14" friction rod, (2) extension tube couplers, (2) puller feet, (2) push caps and (3) extension tubes in 6", 9" and 12" lengths.



[AG] BM101 Push-Pull Jack Set. Attaches to hydraulic pumps and rams. Capable of exerting up to 3,000 pounds of push or pull power. Aligns, straightens and removes dents. Has a multi-purpose hook on the jack head as well as a hook on the 55" friction rod for added versatility and trouble free operation. A 3-position handle allows extra flexibility in confined areas. The friction rod flexes to maintain constant pressure without bending, while the grooved end prevents slipping.

The BM101 Jack set, at right, consists of a jack head and 55" friction rod, a multi-purpose hook attachment and an extension handle.

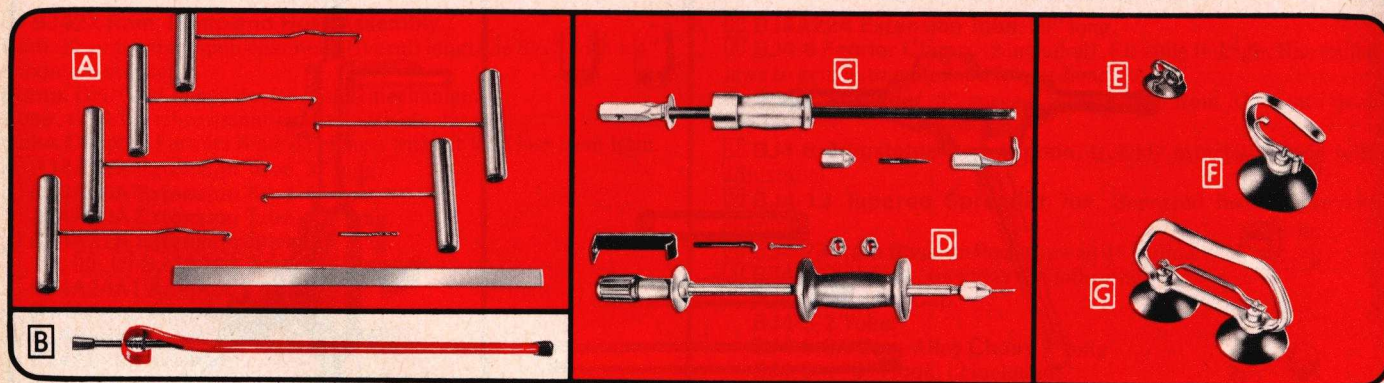


2183ABRB Body Repair Set. Contains tools listed below in KRA58D Tool Chest (page 14).

2183ABR Set. Tools only.

Stock No.	Description	Page
5ASA	Awl (8 1/2").	158
14V7	Flexible Curved-Tooth File (14").	172
91CP	Interlocking-Joint Pliers (9 1/4").	149
96CP	Needle Nose Pliers (7 1/8").	149
134TMB	1/4" Dr. Set (34 pcs.)	43
211SFSY	3/8" Dr. Socket Set (11 pcs., std., 6 point)	55
218FSP	3/8" Dr. Set (18 pcs.)	50
312SWY	1/2" Dr. Socket Set (12 pcs., std., 12 point)	67
387CP	Diagonal Cutters (7 1/4").	148
BF142	Wood File Holder.	172
BF603	Long Low Spot Pick Hammer.	232
BF611	Picking and Dinging Hammer.	232
BF618	Wide Nose Peen Hammer.	232
BF710A	Toe Dolly.	232
BF711	Heel Dolly.	232
BF712	General Purpose Dolly.	232
BF716	Light Dinging Spoon.	232
CD10	Tinner's Snips (10").	233
CD46CP	Combination Pliers (6").	145
DAS10B	Straight Cut Metal Cutting Shears.	233
OEX711	Long Combination Wrench Set (11 pcs., 12 point)	96
PPC4A	Center Punch (3/16" point, 6" long).	156
PPC210A	Starter Punch (5/16" point, 7 1/4" long).	156
PPC816A	Flat Chisel (1/2" edge, 6" long).	156
PPC824A	Flat Chisel (3/4" edge, 7 1/4" long).	156
S9538A	Door Handle Spring Remover.	237
SDX80	Std. and PHILLIPS® Screwdriver Set (8 pcs.)	138
SL710	1/2" Dr. Ratchet.	65
SN18A	1/2" Dr. Breaker Bar.	62
SX5	1/2" Dr. Extension Bar (5").	62
SX10	1/2" Dr. Extension Bar (10").	62

MISCELLANEOUS REPAIR TOOLS



CAUTION: Wear approved eye protection when using pulling equipment.

PULL ROD SET

[A] BF200. Drill 9/64" holes and pull metal to shape. Includes: 4 pull rods, 2 pick pulls, a straight edge and a drill bit. Rods lift metal without distortion. No need to remove upholstery.

HOOD HOLDER

[B] YA387. Holds hood, door or trunk lid open during repairs, replacement or body work. Telescoping column locks instantly at any extension length within a range of 28" to 46". Ends have rubber tips.

BODY DENT PULLERS

[C] CJ107. Slide hammer action pulls out dent for filling. "L" hook included for larger jobs.

CJ107-4 Optional Adaptor. Permits use of tapered screw with CG250-8A slide shaft and CG250-9 hammer (p. 195).

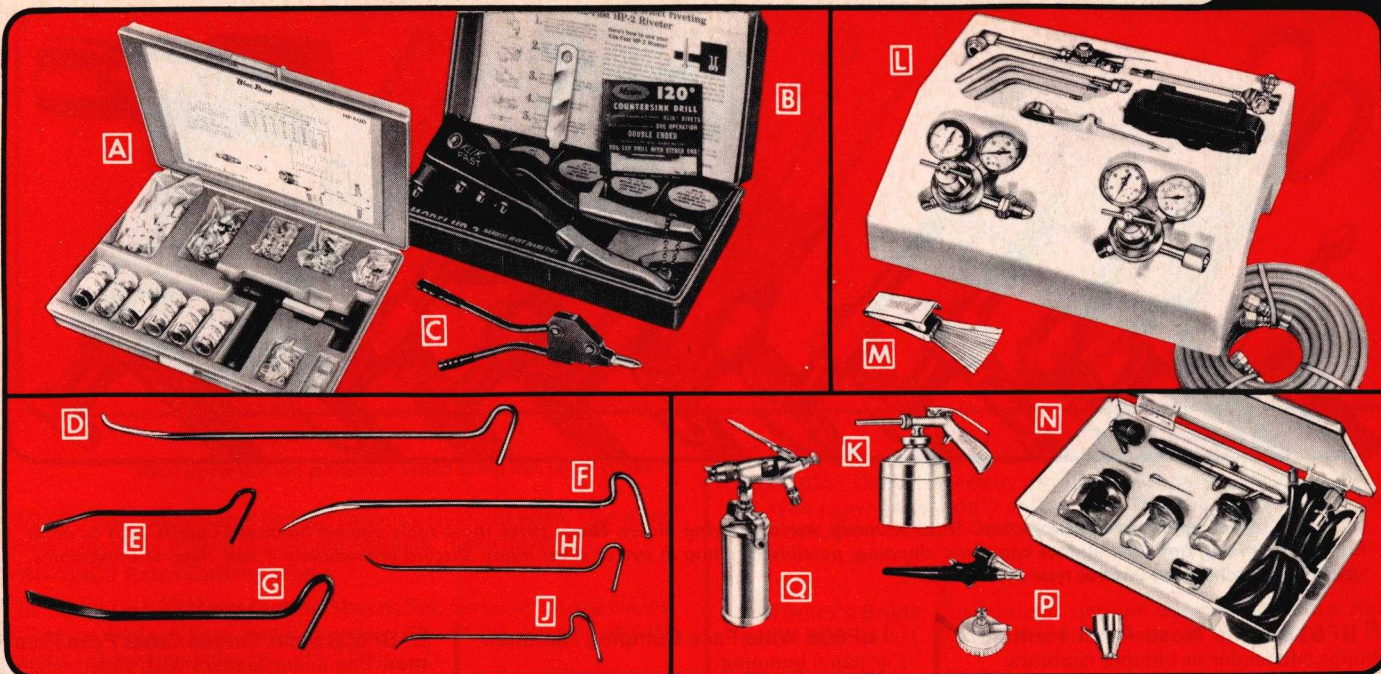
[D] CJ114. Mainly for rocker, quarter, back and door panels. 3-pound hammer plus rubber knurled handle.

SUCTION TOOLS

[E] BF803 Suction Cup. Two finger grips for easy lifting...two projecting tabs for quick release. 3 1/4" diameter.

[F] BF801 Heavy Duty Suction Tool. Pull out dents or handle glass. Its handle increases pulling power. Trigger releases grip. 5" suction cup.

[G] BF802 Heavy Duty Dual Cup Suction Tool. For pulling more stubborn dents or lifting larger materials. Handle has room for 2 hands. Trigger releases both 4" cups simultaneously.



CAUTION: Always wear approved eye protection when using Body Picks, Sand Blast Guns and Welding Equipment.

A HP400 NUTSERT® Insert Fastener Set. Installs various size NUTSERTS in practically any material. One length NUTSERTS can be used in any thickness above .030" ($\frac{1}{32}$ "). Is suitable for both standard or drilled holes. NUTSERTS self-tighten with repeated use. The set contains a T-handle installation tool, 6 thread size conversion kits and 6 sizes of NUTSERTS. Contents are organized in a red plastic case.

NUTSERT® SPECIFICATIONS

Stock Number	Thread Size	Quantity
HP400- 440	4-40	25
HP400- 632	6-32	25
HP400- 832	8-32	25
HP400-1032	10-32	25
HP400- 420	$\frac{1}{4}$ "-20	25
HP400- 518	$\frac{5}{16}$ "-18	15

NUTSERTS® are a registered trademark of Avibank Manufacturing Company.

B HP200A Riveter Kit. Includes Rivet Tool below, 120° countersunk, $\frac{1}{8}$ " drill bit and approximately 200 assorted rivets described below.

HP2 Rivet Tool. Has four interchangeable nose pieces for rivets $\frac{3}{32}$ " thru $\frac{3}{16}$ " diameter. For $\frac{1}{8}$ " thru $\frac{5}{8}$ " thicknesses. Made of aluminum alloy.

HP30N Special Rivet Nosepiece. Use with HP2 to replace OEM welded studs on trim molding. Described below.

Buttonhead Rivets

Diam.	Working Thickness	Made of
$\frac{1}{8}$ "	$\frac{1}{8}$ "	Steel
$\frac{1}{8}$ "	$\frac{1}{4}$ "	Steel
$\frac{3}{16}$ "	$\frac{1}{8}$ "	Aluminum with aluminum mandrel
$\frac{3}{16}$ "	$\frac{1}{8}$ "	Aluminum with steel mandrel

120 Degree Countersunk Rivets

$\frac{1}{8}$ " $\frac{1}{8}$ " Steel

HP30N Rivet Nosepiece

For $\frac{1}{8}$ " Rivets, $\frac{7}{16}$ " x $\frac{11}{32}$ " Diameter

C HP300 Large Blind Rivet Kit. Extra-long handled riveter. Includes 3 nosepieces which thread into the tool body when not in use. Also included with the 21" Riveter is one bag of KLIK-SPLIT® rivets. (50 KLIK-SPLIT rivets provided. Reorder quantities of KLIK-SPLIT and KLIK-FAST® rivets are described below, packaged 50 per bag).

Stock Number	Size	Rivet Type	Application
HP371	$\frac{3}{16}$ "	KLIK-FAST	Window Regulator
HP372	$\frac{1}{4}$ "	KLIK-SPLIT	Door Handle
HP376	$\frac{1}{4}$ "	KLIK-FAST	Glass Stop

KLIK-FAST® and KLIK-SPLIT® are registered trademarks of the Marson Corporation.

BODY PICKS

D BF1107. Point curves at right angle to handle. Made of $\frac{9}{16}$ " stock. 31" long.

E BF723. Has $\frac{1}{16}$ " chisel end that curves at right angle to handle. 16" long.

F BF1106. Point curves at right angle away from handle. Made of $\frac{9}{16}$ " stock. 26 $\frac{1}{2}$ " long.

G BF722. Has 1" chisel end that curves at right angle to handle. 20" long.

H BF767B. Point curves at right angle away from handle. Made of $\frac{3}{8}$ " stock. 18" long.

J BF766B. Point curves at right angle to handle. Made of $\frac{9}{16}$ " stock. 14" long.

K GA133B Sand Blast Gun. Also acts as a liquid blast gun. Siphons liquids directly from drum. Uses air pressure of 60 to 150 psi. Air consumption is 5.25 c.f.m. at 60 psi, 6.65 c.f.m. at 80 psi and 8.06 c.f.m. at 100 psi. Equipped with DIAMONITE nozzle and hardened steel jet. Handles abrasives from 16 to 1000 grit sizes.

L SPV1100C Welding Kit. Complete selection of medium-duty equipment for welding, cutting, heating and brazing applications. Kit includes oxygen and acetylene **Regulators, Torch, Cutting Attachment and Tip**, three **Welding Elbows** with a **Universal Mixer**, 20' **Hose**, a **Sparklighter** and a flip-up **Face Mask**.

Optional Cutting Tips. Size 0 tip included with welding kit; 6 additional sizes:

SL3-102	Size 1	SL3-105	Size 4
SL3-103	Size 2	SL3-106	Size 5
SL3-104	Size 3	SL3-107	Size 6

M SPV1100-4 Welding Tip Cleaner Set. Includes flat file and 13 abrasive wire cleaners covering drill sizes 49 thru 77. Aluminum case stamped with wire number/drill size chart.

SPV1100-5. Set of 6 Replacement Flints. 50T. (CTO) Reverse Flow Check Valve. 60T. (CTF) Reverse Flow Check Valve.

N BF170 Air Brush Kit. Includes air brush, extra needle, hanging bracket, two $\frac{3}{4}$ oz. jars, 2 oz. jar and $\frac{1}{4}$ oz. color cup. Air and paint mix inside metal double action air brush. Operates on 15-50 psi. Normal operating pressure is 30 psi. Includes 8' braided hose.

P BF171 Air Brush Kit. Includes air brush, propel regulator valve and $\frac{1}{4}$ oz. color cup (illustrated above). Also contains same 8' braided hose, $\frac{3}{4}$ oz. jar and 2 oz. jar as **N**. The air brush is a medium line, single-action external mix type.

Q BF400 Touch-up Gun. For detail and custom painting work. Features a convertible trigger for use by right or left hand sprayers. Has a no-drip aluminum paint cup and cam action locking device. Unit comes equipped with a medium paint tip .040". Should be operated from Compressor or CO₂ Tank. Operating pressure of 30 psi for fan spray, up to 80 psi for special or trick effects.



WARNING: Wear approved eye protection. Strike squarely. Avoid glancing blows. Never strike these tools against hardened objects such as other hammers. Striking any hard surface can cause chipping, possibly resulting in eye or other injury. Discard immediately if face chips or mushrooms. Use only for striking automotive type sheet metal.

A BF618 Wide Nose Peen Hammer. Bumps odd fender or bumper contours.

B BF614 Long Picking Hammer. For turret and fender work.

C BF611 Picking & Dinging Hammer. Smooths small dents and for general dinging.

D BF603 Long Low Spot Pick Hammer. For bumping when filing or where metal is covered with soundproofing material.

E BF630 Spot Pick Hammer. Same design as BF603 above, except with blunted pick end.

F BF604 Wide Nose Cross Peen Hammer. For finishing and caulking.

G BF631 Cross Peen Shrinking Hammer. Combines the pick end of the BF604 above and the serrated face of the BF617 below.

H BF617 Shrinking Hammer. Extra large faces for large area work...serrated for shrinking and smooth for finishing.

J BF606 Wide Face Bumping Hammer. For panel bumping.

K BF621 Heavy Duty Bumping Hammer. For heavy gauge fenders and panels.

L BF615 Reverse Curve Light Bumping Hammer. Use on doors, fenders and panels.

M BF608 Short Curved Cross Peen Hammer. Use under fenders with rolled edges. Use finishing face for dinging.

N BF622 Combination Rubber-Set Hammer. Body work as well as tire and wheel use.

REPLACEMENT HANDLES

FIBERGLASS HANDLE KITS

Designed to fit any body hammer on this page. Kits include handle, ferrule, collar and caps, sealing tape, "Nuplabond" and instructions.

BPH120 (12") Handle Kit.

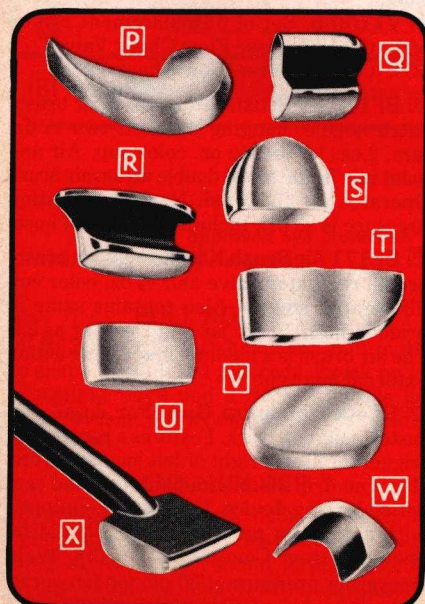
BPH160 (14") Handle Kit.

HICKORY HANDLES

St. No.	Length	Hammers Used On
BF603-2R	13"	BF603, 604, 606, 608 617, 630, 631
BF611-2R	12"	BF611, 615, 618
BF614-2R	17"	BF614
BF621-2R	11"	BF621
BF622-2R	11"	BF622

Stock No.	Head Length	Rd. Face Dia.	Rubber Face	Sq. Face Size	Peen End Size	Radius Curves	Handle Length	Head Wt. Oz.
A BF618	5"	1 9/16"	—	—	3/16" x 7/8"	—	12"	12 1/2
B BF614	8 5/8"	1 5/8"	—	—	—	—	17"	16
C BF611	4"	1 15/32"	—	—	—	—	12"	8
D BF603	6 1/8"	1 19/32"	—	—	1/16" - 7/16"	—	13"	12 1/2
E BF630	6"	1 19/32"	—	—	1/4" - 7/16"	—	13"	12 1/2
F BF604	5 1/2"	1 5/8"	—	—	5/8"	—	13"	11 1/2
G BF631	5 1/2"	1 7/8"	—	—	5/8"	—	13"	11 1/2
H BF617	4 1/4"	1 7/8"	—	—	—	—	13"	16
J BF606	4 1/4"	1 7/8"	—	1 5/8"	—	—	13"	17
K BF621	4 1/16"	1 3/4"	—	1 1/2"	—	—	11"	16
L BF615	4"	—	—	—	—	1 5/16"	12"	12
M BF608	5 5/16"	1 5/8"	—	—	5/8" x 1 1/16"	—	13"	11 1/2
N BF622	—	1 1/2"	2"	—	—	—	11"	—

DOLLIES



CAUTION: Wear approved eye protection when using dollies. Use only for striking automotive type sheet metal.

P BF713B Large Comma Wedge. Long thin blade pries up dents behind curved reinforcements. 5 3/4" x 2 3/8" x 2 1/4"

Q BF712 General Purpose Dolly. For deep skirted fenders and shrinking when using heat. 3" x 2 1/4" x 2 1/4" 2 3/4 lbs.

R BF714 Anvil Dolly. Fits contours. Small oval is for outside curves. 4" x 2 3/4" x 3" 2 7/8 lbs.

S BF711 Heel Dolly. For use in sharp corners and wide radii. 3" x 2 1/4" x 1 3/8" 2 1/4 lbs.

T BF710A Toe Dolly. For dinging flat surfaces. 4 3/4" x 2 1/4" x 1 1/16" 2 1/2 lbs.

U • BF730 Body Dolly. Reaches into tight areas. 4 1/2" x 2 3/8" x 1 3/4" 3 1/2 lbs.

V • BF729 Large Loaf Dolly. For roughing out work. 6 1/4" x 2 1/2" x 1 1/8" 5 lbs.

W • BF731 Fender Dolly. Handles all types of fender and panel angles. 4" x 3 1/4" x 2" 3 lbs.

X BF715 Spoon Dolly. For caulking and forming deep pockets in doors and panels. 13 1/4" long, 2 1/2" x 1" x 3" head size.

See Seven-Piece Body Tool Set on page 233.

Body Spoons, Cutters and Bumping Files also on page 233.

CUTTERS

Body



CAUTION: Wear approved eye protection when using this panel cutter.

A BF708C Body Panel Cutter. Leaves a clean cut edge. Use when new panels are butted against old sections. Blade included.

BF708C2 Extra Cutting Blade.

B C D DAS30 Metal Cutting Shears Set. Serrated cutting blades. Narrow body allows metal to pass over snips. Oil and grease resistant color-coded grips. 10 1/4" long.

B DAS10B Straight Cut Shears. Yellow handle grips.

C DAR10B Right Cut Shears. Green handle grips.

D DAL10B Left Cut Shears. Red handle grips.

B, C, D and F comply with Federal Specification GGG-S-291E.

E CDT1 Light-Duty Snip. General purpose cutter/snip cuts material up to .025" thick. Especially good for sheet metal, wire, rope, yarn or even paper. Heavy-duty spring keeps handles open when in use. Plastic coated handles. Cutting edge 1 1/4" long. Tool 6 1/2" long.

F Tinner's Snips. Cut straight, circular, irregular patterns; right or left hand cuts. Cutting action draws material into blades.

CD7 Snips. 7" long, 1 1/2" blades.

CD10 Snips. 10" long, 2 1/4" blades.

CD12 Snips. 12" long, 3" blades.

SPOONS/FILES



CAUTION: Wear approved eye protection. Use only for striking automotive-type sheet metal.

SPOONS

G BF716A Light Dinging Spoon. Smooths and levels ridges. Not for prying. 10" long, 4 1/4" x 2" head.

H BF727 Inside Heavy Duty Spoon. Curved blade with medium spoon for molding panels and beading. 15" long.

J BF724 Surfacing Spoon. Fender spoon for spring hammering, slapping and metal finishing. 12" long.

K BF726 Inside Medium Crown Spoon. For high ridges or prying. 15" long.

L BF725 Inside High Crown Spoon. For roofs and hoods or for prying. 15" long.

BUMPING FILES

M HB302 Set. For slapping out dents. Tend to shrink metal back into original shape. 1 3/8" wide, 12" long. Fed. Spec. GGG-F-00325 apply.

HB2088 Flat Coarse Cut File.

HB2089 Flat Medium Cut File.

SANDING BLOCKS

Plastic sanding blocks can sand flat or curved surfaces with wet or dry sandpaper.

N BF185. 5" x 2 3/4" Block.

P BF189. 9" x 2 3/4" Block.



BODY TOOL SET

Q 2007BF Body Tool Set. Seven of the most common tools necessary for professional body work are included in this Body Tool Set. Set includes: BF716A Spoon (left), BF608, BF611 and BF617 Body Hammers (p. 232), plus the BF710A, BF711 and BF712 Dollies (p. 232).

More Files appear on page 172.

BRAKE ADJUSTING TOOLS

[A] S9153B. For Pontiac. Blades are $\frac{1}{2}$ " wide, length is $7\frac{7}{8}$ "

[B] B1462A. For rear brakes on cars and trucks with trailing arm bolts. Each tang set at 68° in opposite directions for use on right and left sides. $8\frac{1}{2}$ " long.

[C] B1461. One tang set at 29° for rear brakes, the other at 45° for front brakes. $8\frac{1}{4}$ " long.

[D] B3404B. For Bendix and other self-adjusting brakes with star adjusting nut, except Chevrolet. $\frac{7}{32}$ " wide blades, $\frac{1}{32}$ " tip thickness, $8\frac{3}{16}$ " long.

[E] S8353B. For late model Bendix brakes with rubber plug in adjustment opening. $8\frac{7}{8}$ " long.

[F] S5912. For VW. Ends taper to $\frac{1}{4}$ " width. One end bent 45° . For torsion bar type axles only. $8\frac{1}{2}$ " long.

[G] S5929A. For 1972-current VW Super Beetle and some Ford light to moderate duty trucks with wedge brakes. $\frac{1}{4}$ " wide tips, $\frac{1}{16}$ " tip thickness. One end is straight, the other is bent 45° . $12\frac{1}{2}$ " long.

[H] S6004. For 1969-current Toyota when self-adjusting brakes are dismantled. One end offset 15° the other 60° . $\frac{1}{4}$ " wide tips, $5\frac{1}{4}$ " long.

S6005. For 1969, early 1970 and current Toyota when self-adjusting brakes are dismantled. One end offset 15° the other with a special offset. $\frac{1}{4}$ " wide tips, $5\frac{1}{4}$ " long.

BRAKE BLEEDER WRENCHES

[J] B1460B. Single hex "BOXOCKET" with $\frac{3}{8}$ " and $\frac{7}{16}$ " openings. $\frac{3}{8}$ " end for brake bleeding work, other end for adjusting brake shoe eccentric bolts. Offset clears drag link arm and recessed backing plate on front wheels. $9\frac{1}{2}$ " long.

[K] B1458B. Single hex offset "BOXOCKET" with $\frac{1}{4}$ " and $\frac{3}{8}$ " openings. $9\frac{1}{2}$ " long.

[L] B1467A. For access to GM, Ford and Chrysler bleeder fittings. Single hex offset "BOXOCKET" with $\frac{5}{16}$ " and $\frac{3}{8}$ " openings. "Flank Drive." $8\frac{1}{2}$ " long.

[M] B1463A. For small bleeder fittings on most compacts. Single hex "BOXOCKET" ends tapered for clearance. $\frac{1}{4}$ " and $\frac{3}{8}$ " sizes. $3\frac{3}{4}$ " long arms.

[N] S8184. For fittings on most GM autos, $\frac{3}{8}$ " and $\frac{5}{16}$ " single hex "BOXOCKET" openings. $4\frac{1}{2}$ " long arms.

S5913. For VW sedans and buses. 7 mm and 11 mm single hex "Flank Drive" ends for torsion bar axle only. Same design as S8184 above.

[P] S5927. For 1971-current VW Super Beetle. Also can be used on 1970-current Porsche 914's to clear the rear brake lines and other obstructions. 7 mm single hex "BOXOCKET" double offset $1\frac{1}{2}$ " for access. $5\frac{3}{8}$ " long.

BRAKE WRENCHES

[Q] S8652A. For brake eccentric adjusting screws on Ford and truck hydraulic brakes. $\frac{5}{16}$ " and $\frac{3}{8}$ " open ends. $8\frac{1}{2}$ " long.

B1351A. Same design as S8652A above, but for eccentric cam on Bendix internal brakes. $\frac{1}{4}$ " and $\frac{3}{16}$ " open ends. $8\frac{1}{2}$ " long.

[R] B1360. For various British cars. Flex-head "BOXOCKET" has $\frac{1}{4}$ " and $\frac{5}{16}$ " square openings. $22\frac{1}{2}^\circ$ angle. $7\frac{1}{2}$ " long.

DISC BRAKE TOOLS

[S] GA395 Spreader. For standard 4-piston caliper disc brakes. Frees hands to assemble caliper over rotor. $6\frac{3}{4}$ " long.

[T] FTSM6A Cap Screwdriver. 6 mm, $\frac{3}{8}$ " drive. For VW disc brake (caliper).

[U] BL53 Caliper Piston Remover. For 1975-current Mercury, Thunderbird, Mark IV, Granada and Monarch. Reduces chance of damaging parking brake mechanism in the piston. $5\frac{1}{4}$ " long.

[V] BL54 Rear Brake Piston Adjuster. For same cars as BL53 above. When replacing rear disc brake pads...rotates piston until fully bottomed. Also allows lining-to-rotor clearance. $7\frac{1}{4}$ " high, $6\frac{1}{4}$ " long handle, $\frac{1}{2}$ " screw hex.

EMERGENCY BRAKE SOCKETS

[W] S9620. For adjustment nuts, plus some stabilizer bars...also GM and some other gas tank nuts. $\frac{1}{2}$ " single hex "Flank Drive," $\frac{1}{2}$ " square drive, $5\frac{1}{2}$ " long.

S9618. Same design as S9620 above, but with $\frac{9}{16}$ " wrench opening.

S6100. 15 mm single hex "Flank Drive," $\frac{1}{2}$ " square drive, $5\frac{1}{2}$ " long.

S6101. 13 mm single hex "Flank Drive," $\frac{1}{2}$ " square drive, $5\frac{1}{2}$ " long.

S6102. $\frac{3}{4}$ " single hex "Flank Drive," $\frac{1}{2}$ " square drive, $5\frac{1}{2}$ " long.

S9618. $\frac{9}{16}$ " single hex "Flank Drive," $\frac{1}{2}$ " square drive, $5\frac{1}{2}$ " long.

BRAKE DRUM TOOLS

[X] S9540A Speed Nut Socket. Removes rear brake drum speed nuts on most cars with flange-type axles. $\frac{3}{8}$ " drive, $2\frac{3}{8}$ " long, $4\frac{5}{64}$ " I.D., $2\frac{1}{32}$ " O.D. $\frac{5}{64}$ " prong length, $\frac{9}{64}$ " prong width.

[Y] B301 Removal Adaptor. Must be used with PH79 Bushing Driver (p. 165) and PH50D Air Hammer (p. 164). For small cars. $3\frac{3}{8}$ " O.D.

B302 Removal Adaptor. Same design as B301 above, except for large cars. $3\frac{3}{4}$ " O.D.

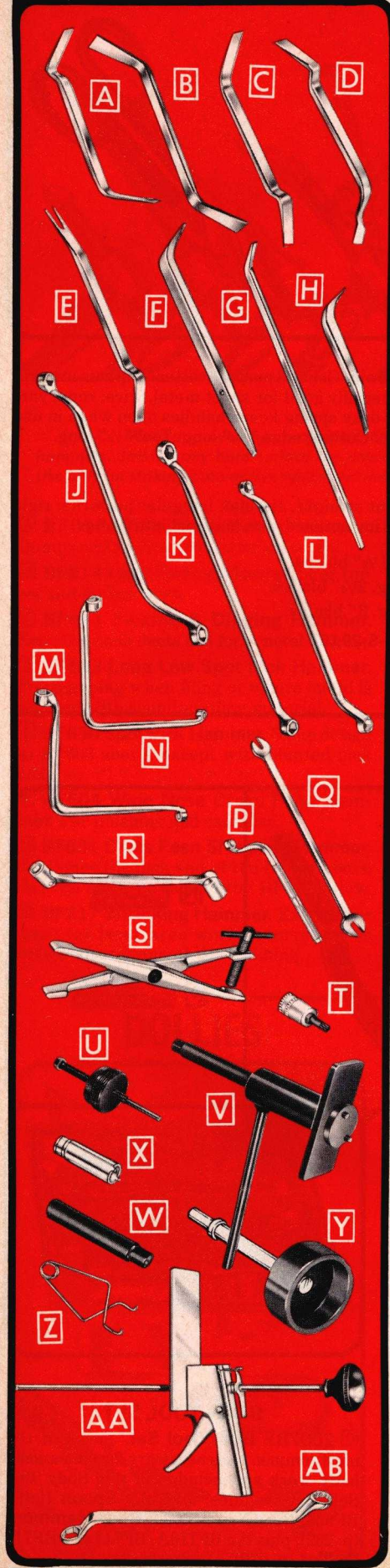
303PH Set. Includes B301 (above), B302 and PH79 (p. 165).

MISCELLANEOUS BRAKE TOOLS

[Z] BL41A Cylinder Clamp. Holds piston in place when installing brake shoes. Edges won't project into cylinder wall. Closes to $1\frac{3}{4}$ " $6\frac{1}{2}$ " long.

[AA] B240A Brake and Accelerator Jack. Handle slides to any position on $28\frac{1}{2}$ " shaft. Used as a pedal depressor.

[AB] B1466A Wheel Cylinder Wrench. For removing bolts from backing plates on some Chrysler and GM products. Has $\frac{1}{2}$ " single hex "Flank Drive" on one end, double hex on the other. Ends offset 60° . $8\frac{3}{4}$ " long.



SERVICE TOOLS

Brake

DUST BOOT INSTALLERS

A GA392. For most GM products with single piston calipers. Durable black plastic withstands light hammer blows.

B GA391B. Five plastic rings (sizes 2.16", 2.375", 2.6", 2.75" and 3.1") cover all sizes of late model Torino, Ford and Chrysler cars. Also includes "O" ring seal pick.

BRAKE SPRING TOOLS

C BT11. Services Bendix brake springs. Also works on any spring attached to post. Socket end removes...hook end replaces. 9 3/4" long.

D B1356C. For brake shoe retaining spring cap on all cars...both coil spring type and flat spring type. Plastic handle and chrome plated metal parts. 5 1/16" long.

E S6404A. Services beehive type brake shoe retainer spring on Bendix brakes. Insert tool thru hole in web of brake shoe, place slot on retainer spring hook, and apply pressure downward. Twist and remove spring. 6 1/4" long.

F 131A Pliers. Removes or replaces Bendix, Lockheed and other hydraulic and mechanical brake springs. Steel hook on jaw is replaceable. Handles provide socket-type spring remover and hook end replacer. 13 3/4" long.

31-3A Replacement Hook for above.

G B1359A. For use on Chrysler and Ford 3/4-ton trucks equipped with Bendix brakes. "U" shaped end offset 30° to 45° for easy removal of brake shoe to packing plate spring. 1/4" shank diameter, 6 13/16" long. 9 1/4" long overall. Black plastic handle, black shank.

TRUCK BRAKE TOOLS

H BT12 Brake Spring Tool. Services brake shoe retracting springs on trucks using Bendix, Wagner and Kelsey-Hayes systems. Unique shape permits access and leverage. 15" long.

J S9523 Brake Adjusting Tool. Star nut turning tool for Chevrolet trucks with overload springs. Different angles at each end for clearance. Blades are 17/32" wide. Tool is 5 1/4" long.

K B1468 Brake Adjusting Tool. For use on 1952-current Chevrolet and GMC 1 1/2-ton and 2-ton trucks. Tips on each end are bent 45° and then twisted 45° for access to brake adjusting mechanism. 9 1/4" long.

L 231 Brake Spring Pliers. Services heavy brake shoe return springs on some models of Huck, Lockheed, Wagner and other trucks. 20 1/4" long.

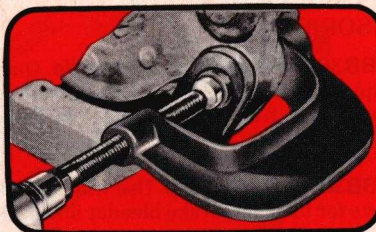
231-3 Replacement Hook for above.

M 331 Brake Spring Pliers. Same design as 231 above, but has slotted spoon in place of pin hook to handle most large trucks, tractors and heavy equipment. 20 1/4" long.

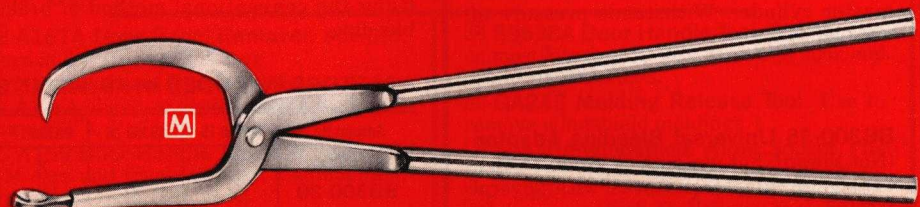
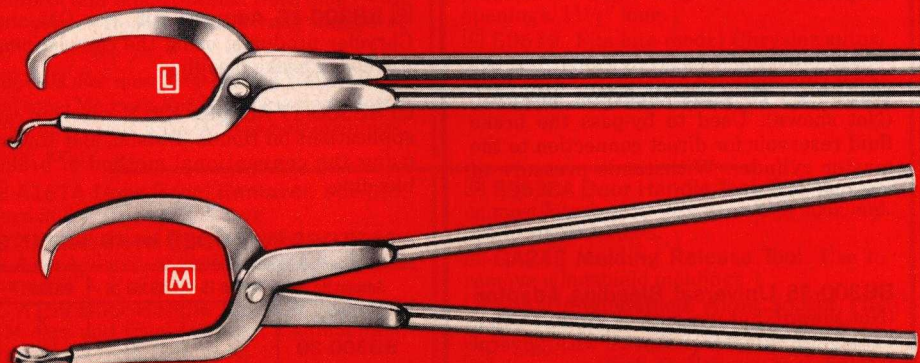
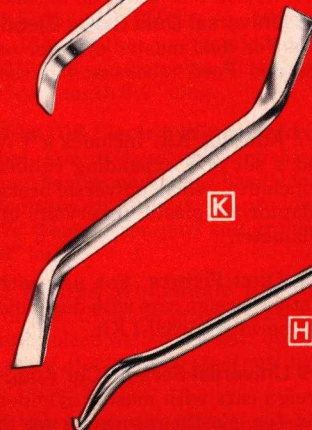
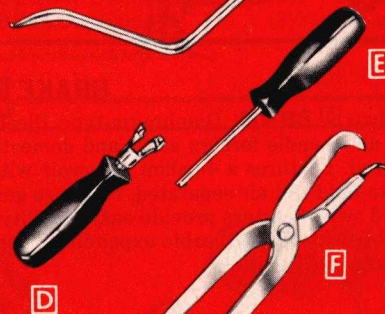
331-3 Replacement Spoon for above.

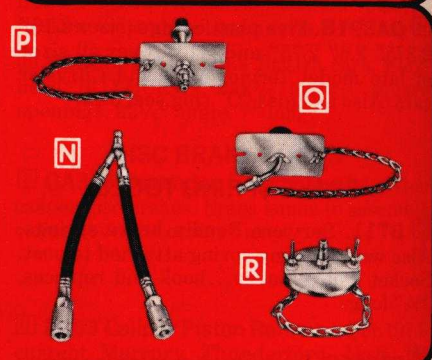
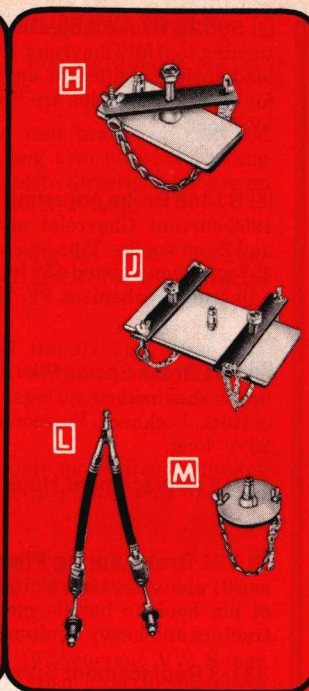
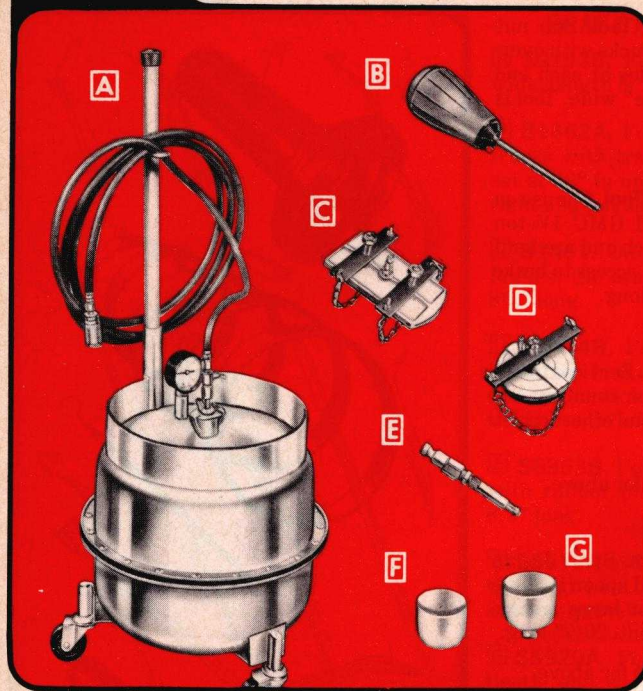
TRUCK BRAKE PIN PULLERS

CAUTION: Always wear approved eye protection or safety glasses when using pulling equipment.



CJ108B Brake Pin Remover. Removes large pins which secure brake shoes. Use a 7/8" "BOXOCKET" to turn the screw...or use an impact wrench to speed the job. For extra heavy duty work, the CG430HYB King Pin Press provides 20 tons controlled hydraulic power.





BRAKE BLEEDER KIT

[A] thru [G] BB300. Diaphragm-type Bleeder Kit will service all basic brake systems. It will also handle foreign autos and domestic trucks and buses when optional adaptors are utilized. Features a 4-gallon reservoir with 12' hose and quick coupler. Diaphragm keeps brake fluid and air separated. Pressure gauge has a range of 0-30 psi. An extension handle and 3 swivel casters provide easy mobility. Also features an automatic fluid shut-off valve, a rubber hand-replaceable expanding filler plug, and a safety relief valve (opens at 25 psi, releases at 15 psi).

INCLUDED ACCESSORIES

[B] BB300-4 Brake Fluid Syringe. Lowers fluid level in both funnel and master cylinder.

[C] BB300-41 Universal Dual Brake Bleeding Adaptor. For open top, dual reservoir master cylinder brake systems. 3 1/2" x 6 3/4"

[D] BB300-45 Universal Single Brake Bleeding Adaptor. For all round, open top master cylinder brake systems, including disc brake equipped models. 4" diameter.

[E] BB300-1 Automatic Fill Nozzle. Quick coupler for filling master cylinders or for bleeding air from brake bleeder and hose assembly.

[F] BB300-2 Plastic Cup. Use with BB300-1 above for bleeding brake bleeder and brake bleeder hose.

[G] BB300-3 Plastic Fill Funnel. Fill brake bleeder full without overflow.

OPTIONAL ACCESSORIES

[H] BB300-5 Single Brake Bleeding Adaptor. For small oblong master cylinder. Measures 5 3/8" x 2 1/2"

[J] BB300-6 Universal Dual Brake Bleeding Adaptor. For dual master cylinder on 1967-69 GM and Ford trucks and buses. 4 1/2" x 8 3/4"

[K] BB300-7 Adaptor Kit. Includes a VW adaptor and a set of 6 expanding rubber seals. Also includes a small universal brake bleeding adaptor for plastic reservoirs up to 2 1/2" in diameter.

[L] BB300-8 Dual Fixture. For use with Honda and other foreign cars with dual fluid reservoirs. Use with BB300-7 Kit.

[M] BB300-9 Universal Foreign Car Adaptor. For foreign cars with master cylinder having open top plastic reservoirs up to 2 1/2" O.D.

[N] BB300-20 Dual Bleeding Adaptor. For bleeding all four wheel brakes on cars with two fluid reservoir master cylinders. Works with all Grigg universal brake bleeding adaptors.

BB300-23 By-pass Bleeding Adaptor. (Not shown). Used to by-pass the brake fluid reservoir for direct connection to the master cylinder. Withstands pressure of over 100 lbs.

BB300-35 Universal Bleeding Adaptor. (Not shown). For use with all sizes of Grigg expanding adaptors. Works with several foreign cars as well as domestic models. Safety chain prevents adaptor popping out when pressurized. (Not shown).

[S] YA800 Master Cylinder Bleeder Kit.

For use when master cylinder only is being replaced. The YA800 Kit contains 6 threaded adaptors which thread into most American cars. Included adaptors are 9/16"-20, 7/16"-24, two 1/2"-20, and 3/8"-24 thread sizes. 20" of bleeder hose and a clip to hold the bleeder tubes in the master cylinder reservoirs are also included. The unit has a built in residual check valve to stop the back-flow of fluid. The YA800 comes packaged in a clear plastic hang-up storage box.

OPTIONAL ADAPTOR KITS

[P] BB300-15 Adaptor Kit. Provides direct connection to the master cylinder, bypassing the brake fluid reservoir. For use on GM and Chrysler products.

[Q] BB300-16 Adaptor Kit. For GM and Chrysler products, using the conventional method of brake bleeding.

[R] BB300-17 Adaptor Kit. For foreign car applications on Honda, Datsun, and Toyota using the conventional method of brake bleeding.

ADAPTORS INCLUDED IN ABOVE KITS

Adaptor No.	BB300-15	BB300-16	BB300-17
BB300-9	—	—	X
BB300-20	X	X	X
BB300-23	X	—	—
BB300-35	—	X	—

BRAKE HONES

CAUTION: When using cylinder hones, always wear approved eye protection.

A TWO-ARM MODEL

JT64. Two arm hone for 1/2" to 2 1/4" diameter cylinders with two medium grit stones, each 1 1/8" long.

JT64-1. Set of two medium (220 grit) stones for JT64.

JT64-14. Set of two fine (400 grit) stones for JT64.

B THREE-ARM MODELS

The CF63 and CF68 Hones, described at right feature new arm expansion, controlled on a flat surface by constant adjustable spring tension. Heavy-duty arms attached with rivet pins.

C FLEX-HONES®

Globules of silicone carbide are laminated to ends of high-density bristles, attached to flexible shaft. Consistent cross-hatch for oil retention. "BCM's" are for brake cylinders, 8" long. "BCD's" are for disc brakes, 5" long. *Not available for export.*

CF63 Hone. 3/4" to 2 1/2" diameter range. Adjustable thumb nut to control tension. See stone sets below.

CF68 Hone. 1 1/4" to 3 1/2" diameter range. For brake cylinders and small engines. Adjustable thumb nut to control tension. See stone sets below.

STONE SETS for CF63 and CF68

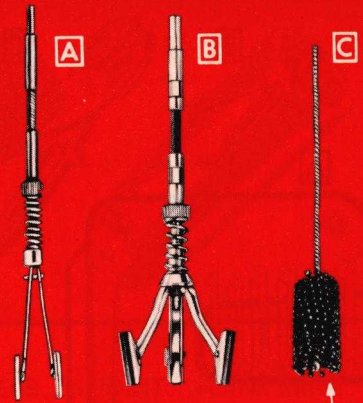
Sets include 3 stones in plastic box. Available in either fine, medium, or coarse grit and in three convenient lengths.

CF63-100	Coarse (3)	1 1/8" long
CF63-1	Medium (3)	1 1/8" long
JT63-21	Medium (3)	2" long
CF63-34	Fine (3)	3/4" long
CF63-14	Fine (3)	1 1/8" long
JT63-24	Fine (3)	2" long

BCM14. Diameter 14 mm (.552")	180 grit.
BCM16. Diameter 16 mm (.630")	180 grit.
BCM18. Diameter 18 mm (.709")	180 grit.
BCM20. Diameter 20 mm (.787")	180 grit.
BCM22. Diameter 22 mm (.866")	180 grit.
BCM25. Diameter 25 mm (1")	180 grit.
BCM29. Diameter 29 mm (1 1/8")	180 grit.

(FLEX-HONES® is a registered trademark of Brush Research Mfg. Co., Inc.)

Brake/Door/Glass



Not Available for Export

BCM35. Diameter 35 mm (1 3/8")	180 grit.
BCM41. Diameter 41 mm (1 5/8")	180 grit.
BCM51. Diameter 51 mm (2")	180 grit.
BCD45. Diameter 45 mm (1 3/4")	180 grit.
BCD54. Diameter 54 mm (2 1/8")	180 grit.
BCD64. Diameter 64 mm (2 1/2")	180 grit.
BCD79. Diameter 79 mm (3 1/8")	180 grit.

DOOR & WINDSHIELD TOOLS



DOOR HINGE BOLT WRENCHES

All wrenches below are 1/2" Dr., with patented "Flank Drive." Chrome finish.

A S9606. For Olds F-85, Chevy II, Pontiac Tempest and Buick Special. Both tangs with 1/2" wrench opening. Each tang angled at 39° 11" long.

S9608B. For most 1969-current GM products and some Mercury, Ford and Lincoln products. 33° angle tangs with 1/2" wrench openings. 12 5/8" long.

A161A Door Panel Remover. For GM, Ford and Chrysler. 7 3/4" long.

A177 Door Panel Remover. Similar design as A161A above, except is used for GM and some VW's. 7 1/2" long.

E A159 Door Handle Tool. Used on most GM cars and trucks (except Cadillac) and some Ford cars. 10 7/8" long.

F KD2106 All-Purpose Scraper. Uses any standard single-edge razor blade. 8" long, folds to 4 5/8" long.

B S9607. For all 1967-1976 Olds and Buick models. 75° angle tangs with 9/16" wrench openings. 11 1/8" long.

C S9619. Fits late-model Chrysler autos, plus GMC and Chevrolet trucks. 39° angle tangs with 9/16" wrench openings. 10" long.
S9624A. Fits most 1978-current autos. 33° angle tangs with 11 mm wrench openings. 12 5/8" long.

G S9538A Door Handle Tool. Fits handles on most late-model Chryslers. Use hook end on old style handles.

H GA243 Molding Release Tool. Use to remove windshield moldings.

J S9540A Windshield Wiper Socket. Fits over wiper shaft. Chrome finish. 3/8" drive, 2 3/8" long.

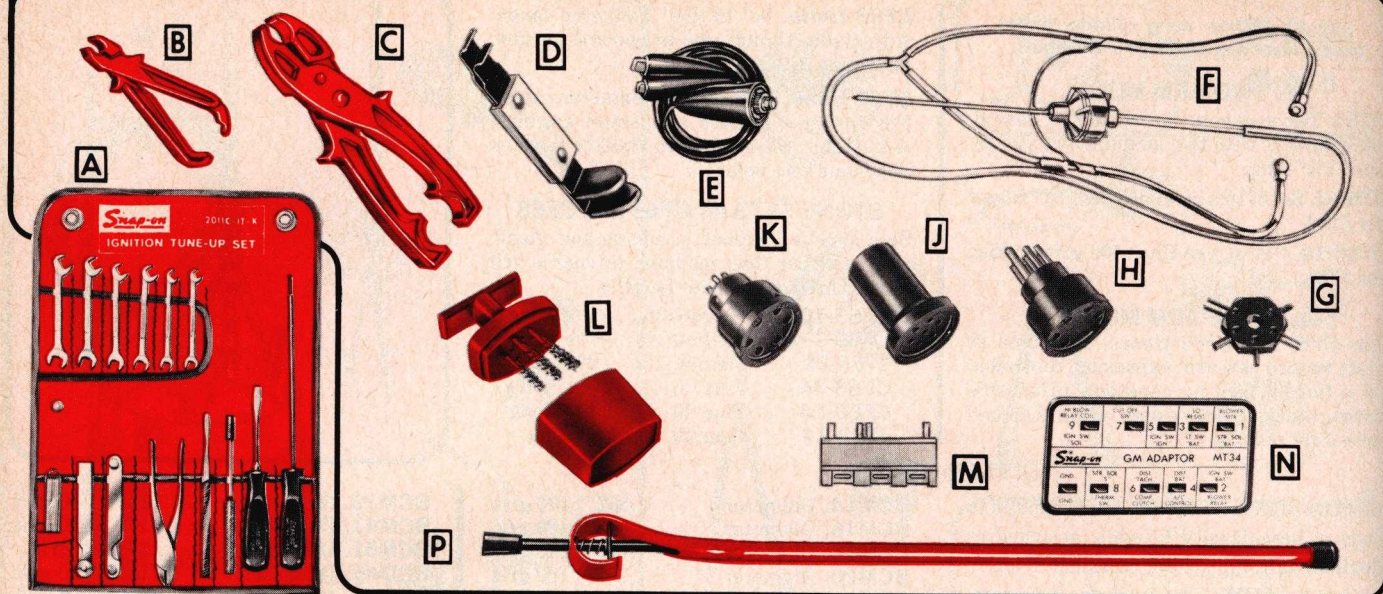
K S9610 Window Sash Nut Spanner Socket. For GM cars and light trucks. Black finish. 1 1/32" long.

L PH169 Windshield Removing Tool. Remove windshields on 1974-current autos. Consists of cutter and driver. Driver used with Snap-on PH45A (p. 164) or PH50D (p. 164) or other pneumatic hammers with .401" driving diameter. Cutter length 7 3/8", driver length 6 1/2" long.

M YA108 Electric Windshield Removing Tool. For 1974-current windshields. Large main handle, plus swing handle for leverage. Operates off 120 watts to produce +700°F. 5 1/2' 3-conductor cord and grounding plug. 13" long.

N YA109A Windshield Removing Tool. For GM, Chrysler or cars with windshields set in place with a sealant. Steel cable pull handle. Replaceable steel cutting blade can be resharpened.

P YA811 Windshield Removing Tool. Black plastic grip handle. 6 3/8" long.



TUNE-UP KIT

A 2011CITK. These tools have been assembled for servicing late model ignition systems...including electronic and HEI systems, as well as contact point ignition systems.

Stock No.	Description
5CP	4 ¹⁹ / ₃₂ " Midget Pliers
FB303	HEI Wire Gap Gauge
FB305	Non-Magnetic Feeler Gauge
FB316B	Ignition and Spark Plug Feeler Gauge
DS806	Set of 6 Ignition Open End Wrenches
HB5	Ignition Point File
MD18A	Distributor Adjusting Tool
SS5A	Screw Starter (.032" x 9/32")
SSD2	Screwdriver (.032" x 3/16")
C111C	Vinyl-Fabric Kit Bag

FUSE TONGS

B & C Fuse Tongs. Feature high insulating qualities, resistant to oil, water, acid and heat up to 300°F. Hand stops prevent slipping.

B FZ4A. DELRIN tongs pull fuses up to 15/16" diameter. 1/8" hook on handle pulls short fuses. 4" long.

C FZ7. NYLON tongs remove auto high tension wires with engine running...or cartridge fuses from 15/16" to 1" in diameter.

FUSE PULLER

D GA316. Minimizes breakage of fuses. Plastic coating on one tip, rounded corner on the other. 3 3/4" long.

REMOTE CONTROL STARTER SWITCH

E MT302. 5' leads allow operation of engine from sides or beneath auto. Housing protects switch from dirt and moisture. Heavy duty switch reduces arcing.

MECHANIC'S STETHOSCOPE

F GA111D. Locates any engine sound...such as bearing noise, knocks, squeaks in fan or water pump and valve tappets. Includes sound amplifying diaphragm and a 12" two piece probe to locate trouble before you start your servicing.

WIRE TERMINAL TOOL

G GA500. Removes wires from terminal blocks without damage. Fits most common sizes.

TRUCK LIGHTING CHECKERS

H YA814 7-Way Checker. Tests tractor 7-way plug for voltage and wiring. 6 solid state indicators show shorts between lines, shorts to ground, open ground wire, cross wiring and open lines. Indicates functioning of stop, right and left signal, auxiliary, clearance and tail lights.

J YA815 7-Way Adaptor. For use with YA814 above. Provides contact between the receptacle and 7-way checker pins.

K YA816 6-Way Checker. Performs same function as YA814 above but is designed for use on trucks with a 6-way plug.

PLUG CONNECTOR CLEANERS

L Cleaners. Designed for cleaning female connectors found on most tractor-trailer electrical connecting points. Brushes are molded into tough plastic body. Includes protective cap.

AC66. Six-way plug connector cleaner.

AC77. Seven-way plug connector cleaner.

CONNECTOR ADAPTORS

M MT32 Diagnostic Plug Adaptor. For making connections between electrical testing meters and GM autos equipped with an orange diagnostic connector. Features alignment tab for proper insertion into connector. Shielded plastic recesses prevent terminal plugs from shorting.

N MT34 Connector Adaptor. For GM cars equipped with a common terminal connector. Just connect test leads to the proper terminals and you can perform 8 different engine voltage tests or 8 different air conditioner voltage tests.

HOOD HOLDER

P YA387. Holds hood, door or truck lid open during tune-up or body repair work. Telescoping column locks instantly at any extension length within a range of 28" to 46". Ends have rubber tips.

SOCKETS

Spark Plug



3/8" DRIVE MODELS...6 POINT...FLANK DRIVE

CAUTION: Units A and B are for hand operation.

A STANDARD...Magnetic

Stock Number	Socket Size	Male Hex	Overall Length	Rubber Insert
S9704F	13/16"	11/16"	2 15/32"	S9705A2
S9706	5/8"	5/8"	2 3/8"	S9706-2B
S9711	18 mm	5/8"	2 3/8"	S9706-2B
S9714	11/16"	5/8"	2 1/4"	S9706-2B
•S9715	13/16"	5/8"	2 1/4"	—
•S9717	5/8"	11/16"	2 25/64"	—

B SWIVEL-SQUARE

S9704CFU	13/16"	...	3 9/32"	S9705A2
S9706AFU	5/8"	...	3 11/32"	S9706-2B

C BALL-JOINT..."FLEXOCKETS"

CAUTION: For use with air ratchets. Wear approved eye protection.

S9709B	13/16"	...	3 23/32"	S9705A2
S9710A	5/8"	...	3 39/64"	S9706-2B

1/2" DRIVE MODELS...6 POINT...FLANK DRIVE

A STANDARD

CAUTION: For hand operation only.

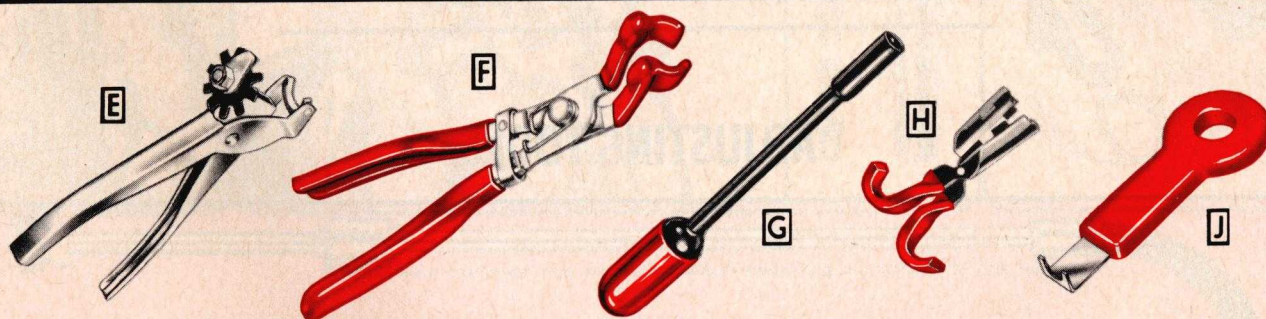
Stock Number	Socket Size	Male Hex	Overall Length	Rubber Insert
S9705A	13/16"	7/8"	2 1/2"	S9705A2
S9712	7/8"	7/8"	3 1/4"	S9712-2

D RETAINING RING

For pleasure craft size aircraft engines such as: Lycoming, Continental and Pratt-Whitney.

Stock Number	Socket Size	Male Hex	Overall Length	Retaining Ring
S6106	7/8"	7/8"	3 1/2"	S6106-2

GAPPERS, REMOVERS



E Spark Plug Gappers. Assure uniform parallel gap for wider spark. Gauge and set electrode in one operation. Gauge wheels set for any manufacturer's specifications.

CF71. Sizes are: .010", .020", .022", .025", .027", .028", .030", .032", .034" and .035"

CF70A. Sizes are: .022", .025", .026", .028", .030", .032", .035", .036", .038" and .040". The .040" spacer is for Olds V-8 engines and 5/8" hex plugs on GM vehicles. Not for 3/4" plugs.

CF72. Sizes are: .035", .040", .042", .046", .052", .054", .056", .060", .070" and .080". For electronic ignition systems.

CF71-1M Metric Gauge Plate. Can adapt to above gappers. Sizes are: .056 mm, .063 mm, .066 mm, .071 mm, .076 mm, .081 mm, .088 mm, .091 mm, .096 mm and .101 mm.

For Spark Plug Gauges, see page 179.
For Metric Spark Plug Hole threading tools, see page 186.

F YA824A Spark Plug Wire Pliers. 45° offset jaws grip wire at boot. Vinyl-coated jaws and handles assure gripping ability. Use only on automotive type ignition systems. 9 1/2" long.

G YA309 Spark Plug Remover and Installer. Flexible shaft permits access from many angles. Soft-stepped tip firmly grips terminal and porcelain. 9" long.

H YA334 Spark Plug Wire Puller. Remove "frozen" boots with a twist and a pull. Eliminates separated wires. Front tabs grip under boot, jaws grip sides. Plastic covered grips for comfort. Stubby design ideal in tight areas. 4" long.

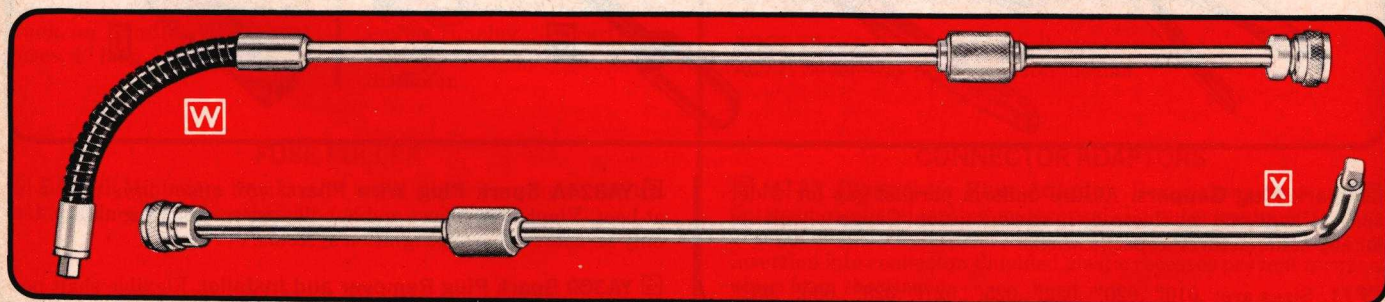
J YA335 Spark Plug Boot Puller. Rubber loop handle provides insulation up to 60,000 volts. Handle is flexible for access to confined areas. Its zinc coated extractor end fits around the spark plug boot. 5 3/4" long.



DISTRIBUTOR WRENCHES

Stock No.	Wrench Size	Applications
A S9467B	7/16"	Chrysler, Dodge, Plymouth, Dart and Valiant cars.
B S6002B	10 mm	Datsun and Mazda cars.
C S8704	13 mm	1973-75 Pinto and Capri engines.
D S8707	13 mm	1976-current Pinto and Mustang V-6 engines.
E S8705	17 mm	Ford 2.3 litre engines.
F S8173	1/2"	Buick and Cadillac engines.
G S8564B	1/2"	Ford, Lincoln and Mercury engines; clears leads, coils, etc.
H S9476A	1/2"	V-8 Chrysler and Dodge and Ford Super Duty Trucks.
J S9482A	1/2"	V-8 Chrysler engines and Dodge light trucks.
K S8708	1/2"	1977-79 Ford V-8 engines with electronic ignition systems.
L S9707	1/2"	Ford, Mercury and Cadillac engines.
M S9761	1/2"	1975 and 1976 Cadillacs with fuel injection.
N M3515	9/16"	General Motors V-6 and V-8 trucks.
P S8176	9/16"	Pontiac and Oldsmobile engines.
Q S9609	9/16"	Chevrolet V-8 engines.
R S9622	9/16"	1977-current full size General Motors cars with V-8 engines.
S S9626	9/16"	General Motors V-6 automobile engines.
T S9832C	9/16"	Late model Buick and Chevrolet V-8 engines.
U S9838	9/16"	Late model Buick Special and Olds F-85.
V S8190	9/16"	Oldsmobile and Cadillac, plus GMC light trucks.

ADJUSTING TOOLS

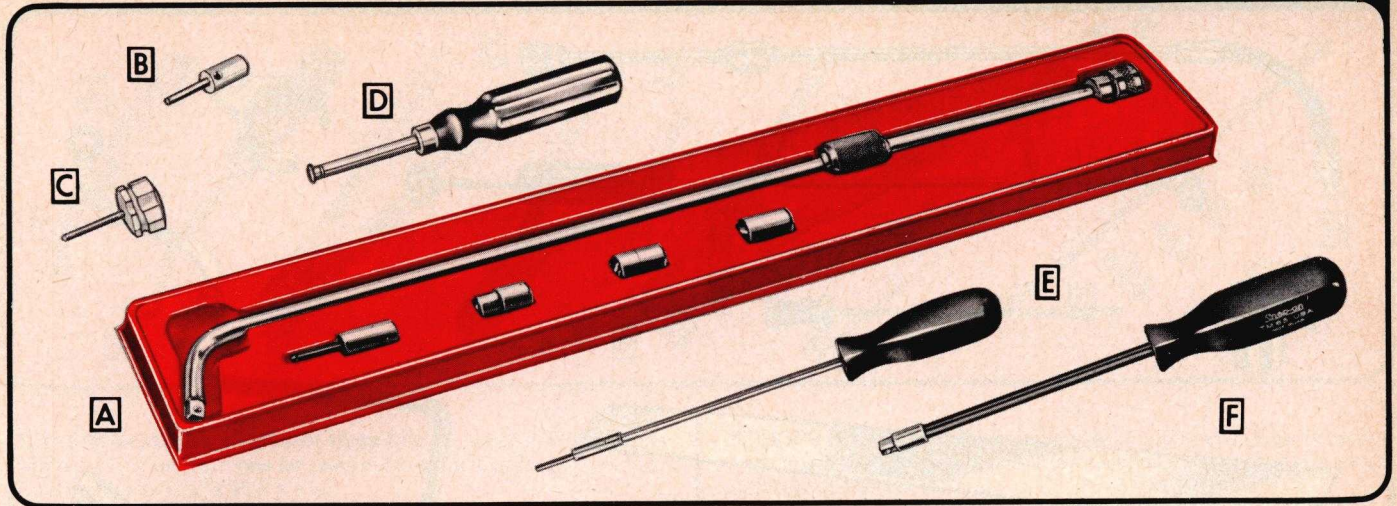


1/4" DRIVE ADJUSTING WRENCHES

W **TM65 Flexible Adjusting Wrench.** Ideal tool for getting into tight, otherwise inaccessible areas and for adjusting window-type distributors and carburetors. Knob is knurled for non-slip grip and is marked for counting turns. Chrome finish.

X **TM64 Rigid Adjusting Wrench.** Similar design as TM65 at left, except rather than the flexible feature it has a rigid elbow bend to hold its angle. Etched knob enables user to count turns. Used in 2005IT Set on next page. Chrome finish.

Stock No.	Square Drive	Shaft Length	Cable Length	Overall Length
TM65	1/4"	14 1/4"	5 1/2"	19 3/4"
TM64	1/4"	16"	5"	18 1/4"



A 2005IT Distributor and Carburetor Adjusting Set. Includes popular components for making distributor point and carburetor adjustments during tune-ups. Set includes:

TM83A Carburetor Screwdriver **TM84** Carburetor Screwdriver
TM85 Carburetor Screwdriver **TM64** 1/4" Drive Adjusting Tool
TMAS4 1/8" Speed Ball Hex Driver

B TMA4 1/8" Hex Head Screwdriver. 1/4" drive. Use with adjusting tools on page 240. For point adjustment on Delco distributors.

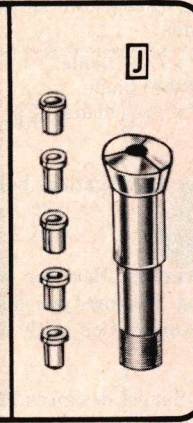
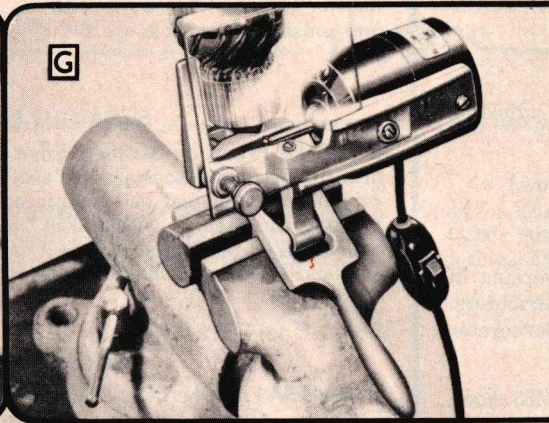
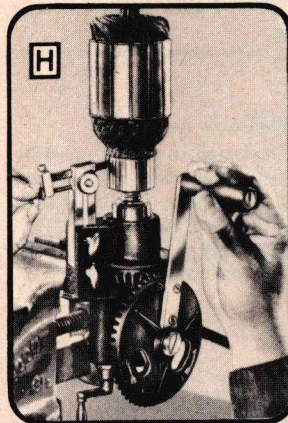
TMAS4 Speed Ball Driver. Similar design as TMA4 above, except it has a speed ball on hex driver tip.

C SDA4 Point Adjustment Tool. Adjust points on Delco-Remy window-type distributors with external adjustment.

D ACD12 Distributor Cleaning Brush. Wire brush cleans terminal connections on distributors and coils. 5 1/4" long with 4" long handle. Wire diameter is .012"

E MD18A Distributor Adjuster. Flexible shaft tool has 1/8" hex speed ball driver for Delco-Remy window-type distributors. 9 5/8" long.

F TM63 Insulated Flex Shaft Driver. 1/4" driver. For use on Delco-Remy window-type distributors.



CAUTION: Always wear approved eye protection when operating equipment of this type.

UNDERCUTTER

G AT1 Electric Mica Undercutter. Attaches to any vise. Universal V-block handles all popular armature shafts. Operates on 115-volt, 25-75 Hz, AC or DC current. Includes the following four cutters:

AT1-14A .010" **AT1-14B** .015" **AT1-14C** .020" **AT1-14D** .025"

COMMUTATOR TOOL

H AT2XB Commutator Turning Tool Set. Handles armatures with .393" .500" (1/2"), .562" (9/16"), .591" and .625" (5/8") diameter shafts. Doesn't require centerless chuck nor removal of back plates. Use on any vise. Includes turning tool, bushings (listed below) and cutter blade in KRA108A Metal Box.

AT2-61 1/2" I.D. **AT2-63** 5/8" I.D. **AT2-65** .393" I.D.
AT2-62 9/16" I.D. **AT2-64** .591" I.D. **AT2-16** Blade

AT2X Set. Above set without metal box.

OPTIONAL PARTS for AT2XB

I Small Collet and Bushings. Adapt AT2X to fractional motors.

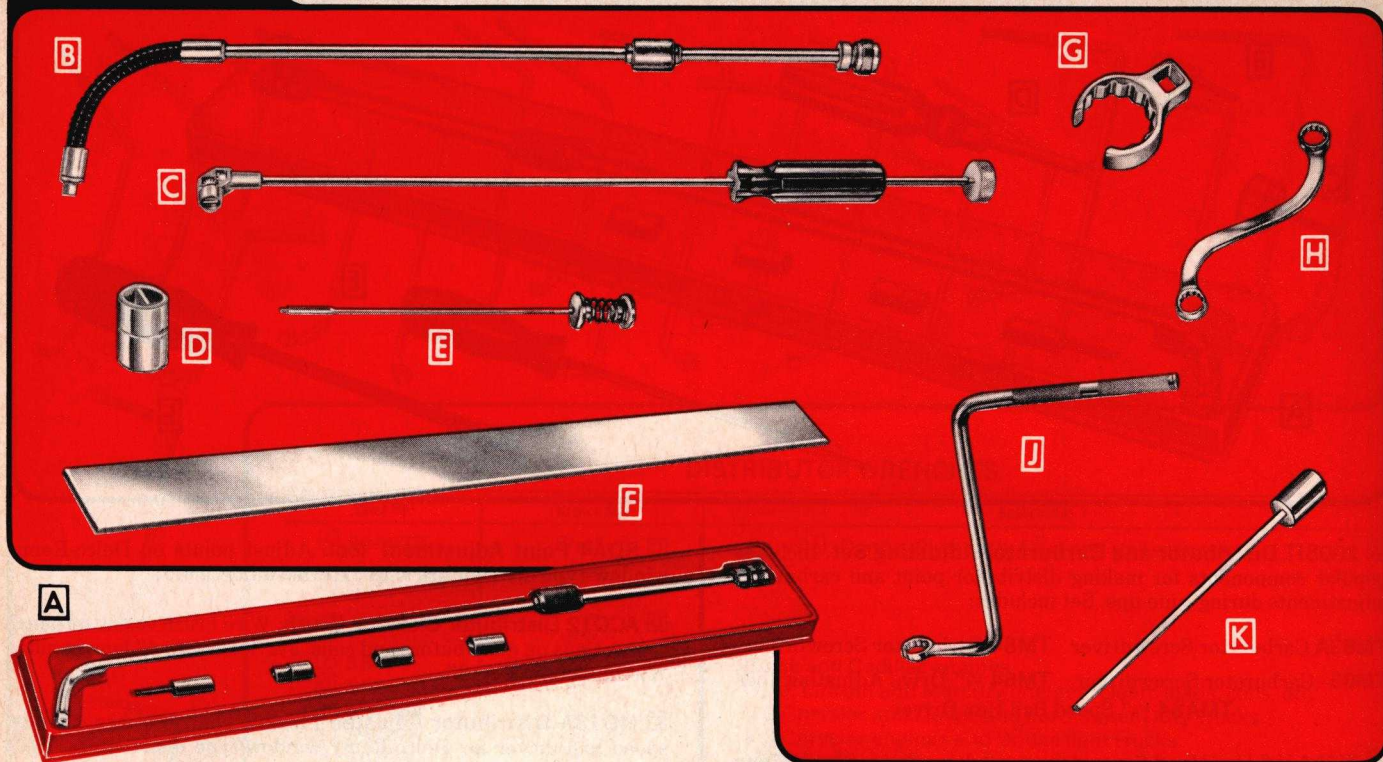
AT2-70 3/8" Collet **AT2-72** .296" I.D. **AT2-74** .265" I.D.
AT2-71 1/2" I.D. **AT2-73** .281" I.D. **AT2-75** .250" I.D.

AT2-56 Long Cutter Bar Assembly (not shown). For use with armatures with long shafts.

AT2-57 5" long Cutter Bar **AT2-66** .469" I.D. Bushing
AT2-76 .490" I.D. Bushing for VW generators and starters

ARMATURE GROWLER

K MT326B. Enables quick and accurate location of defects in any armature between 1" and 8" in diameter. Neon test light with test leads checks insulation and continuity. UL listed.



ADJUSTING SET

A 2005IT Carburetor and Distributor Adjusting Set. Includes popular size components for making carburetor as well as distributor point adjustments. Set includes:

TM83A Carburetor Screwdriver, $\frac{1}{32}$ " x $\frac{23}{64}$ " blade.

TM84 Carburetor Screwdriver, $\frac{1}{32}$ " x $\frac{7}{16}$ " blade.

TM85 Carburetor Screwdriver, $\frac{1}{32}$ " x $\frac{9}{32}$ " blade. (For adjusting late model Quadrajet carburetors.)

TMAS4 $\frac{1}{8}$ " Speed Ball Hex Driver.

TM64 Carburetor Adjusting Tool. (See specifications below.)

ADJUSTING TOOLS

B **TM65 Carburetor Adjusting Wrench.** Ideal for working in tight spaces. Also good for servicing window-type distributors. Knob markings allow for counting turns. Use with Carburetor Screwdrivers **C** below.

TM64 Carburetor Adjusting Wrench. Similar design as TM65 above, except it has rigid bend rather than flexible feature. Illustrated in 2005IT Set above.

Stock No.	Square Drive	Shaft Length	Cable Length	Overall Length
TM65	$\frac{1}{4}$ "	14 $\frac{1}{4}$ "	5 $\frac{1}{2}$ "	19 $\frac{3}{4}$ "
TM64	$\frac{1}{4}$ "	16"	5"	18 $\frac{1}{4}$ "

C **YA830 Carburetor Adjusting Tool.** Piloted recessed screw tip for self-centering. Tip is set at right angle to allow fine adjustments of idle screw. Positive gear drive. 18" long.

SCREWDRIVERS

D **Carburetor Screwdrivers.** Use with TM64 and TM65 (see **B** above) and other $\frac{1}{4}$ " drive handles. Blades are recessed in outer socket wall to self-center.

TM83A $\frac{1}{32}$ " x $\frac{23}{64}$ " blade.

TM84 $\frac{1}{32}$ " x $\frac{7}{16}$ " blade.

TM85 $\frac{1}{32}$ " x $\frac{9}{32}$ " blade for adjusting late model Quadrajet Carburetors.

PIN PULLER

E **GA467 Carburetor Pin Puller.** For removing or installing carburetor pins and for work with "C" clips. Puller hook retracts into housing when not in use. 6 $\frac{13}{16}$ " long.

STRAIGHT EDGE

F **GA438 Precision Straight Edge.** Designed to check possible distortion in engine housings, but also good for checking carburetor, cylinder head or gear end clearance in oil pumps. 18" long with working edge held to within .0002" per 12" in length. It is 1 $\frac{13}{32}$ " wide and $\frac{3}{16}$ " thick. Also excellent for checking distortion in small engines like outboard motors, snowmobiles or lawn mowers.

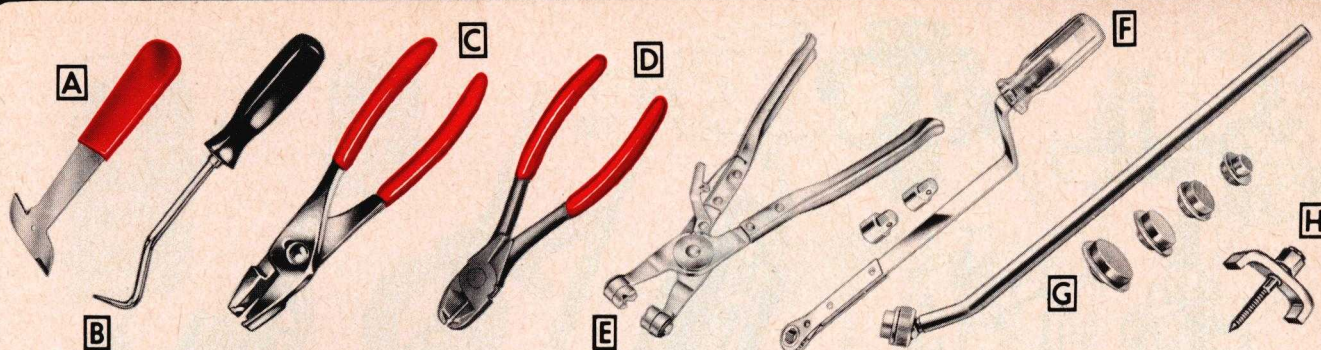
WRENCHES

G **S9713A Flare Nut Crowfoot Wrench.** For Cadillac carburetor fuel filters. 1" wrench opening. $\frac{3}{8}$ " drive, $\frac{31}{32}$ " long center-to-center. Chrome finish.

H **S5911 Carburetor "BOXOCKET."** 13 mm and 14 mm offset box ends to clear obstructions in servicing carburetors, heater junction boxes and exhaust systems on VW and other air cooled engines. 5 $\frac{13}{16}$ " long. Chrome finish.

J **S6013 Datsun Carburetor Wrench.** For Datsun 4-cylinder engines including 1973 models. 12 mm, double hex will service nuts that mount carburetor to manifold. Head diameter is $\frac{3}{4}$ "; head thickness is $\frac{1}{4}$ " 6 $\frac{1}{2}$ " long. Chrome finish.

K **TAM3 Hex Head Driver Wrench.** Designed for performing carbon monoxide adjustments on the 1976 Dasher, 1974-76 Audi and Volvo and the 1975-76 Fiat and Saab. Extra long bit is ideal for reaching deep into otherwise inaccessible areas where carbon monoxide adjustment screws may be located. 3 mm bit size. $\frac{1}{4}$ " drive, 6 $\frac{7}{8}$ " long. Chrome finish.



A YA318 Heater and Radiator Hose Slitter. Angled "T" blade has double cutting edges...one for push cutting and one for pull cutting. Vinyl handgrip. 6 $\frac{1}{4}$ " x 1 $\frac{3}{4}$ " x $\frac{1}{16}$ "

B A173 Radiator Hose Tool. Speeds removal of radiator hose from clamp. Also used for cotter pin pulling. Blade is 4 $\frac{3}{4}$ " long. Overall length is 8 $\frac{11}{16}$ "

C HCP48BP (8") Corbin Hose Clamp Pliers. For $\frac{3}{4}$ "-2" diameter clamps. Jaws close to within $\frac{1}{8}$ ". Red plastic grips.

HCP46BP (6 $\frac{13}{32}$ ") Corbin Hose Clamp Pliers. For less than $\frac{3}{4}$ " clamps. Jaws close to within $\frac{1}{16}$ ". Red plastic grips.

D A174CP Hose Clamp Cutter. For cutting radial clamps used on radiator hoses as original equipment. Bow-type plastic grip handles. Overall length 7 $\frac{1}{16}$ ". Not for cutting stainless steel bands.

E HCP9 Hose Clamp Pliers. Removes or replaces all sizes of spring wire hose clamps. Deep slotted jaws swivel 180° and lock in three different positions. 9" long.

F YA125A Ratcheting Fan Blade Wrench. Double offset, 12" handle for access to restricted areas. Feature $\frac{1}{2}$ " and $\frac{9}{16}$ " 6-point socket adaptor with $\frac{1}{2}$ " 6-point male end for use on either side of reversible wrench opening. Sockets have friction ball retainers. Overall length 16 $\frac{1}{4}$ "

G YA119 Freeze Plug Installer Kit. Includes 18 $\frac{1}{2}$ " long installing tool with ball-type swivel head for easy positioning, plus five replaceable heads in the following sizes: $\frac{3}{4}$ ", 1", 1 $\frac{1}{4}$ ", 1 $\frac{1}{2}$ " and 1 $\frac{3}{4}$ ". *Caution: wear approved eye protection.*

H CG25 Freeze Plug Puller. For freeze plugs up to 2" dia. $\frac{1}{4}$ " thick yoke receives 2 $\frac{7}{8}$ " long self-tap screw. Screw withstands repeated hammer blows. *Caution: wear approved eye protection.*

TESTERS

CAUTION: Always wear approved eye protection when using pressurized testing equipment.

J SVT262 Cooling System Tester. Test pressure cap and cooling system for leaks. Cap has rotating lever for fine pressure adjustment. Includes hand pump, tester head with 12" hose and cap tester adaptor in a black plastic case. Readings are in both psi and kPa.

OPTIONAL ACCESSORIES for SVT262

TA15. Diesel Adaptor.

TA16. Volkswagen Adaptor.

A450. Truck Adaptor Kit. Includes cap, radiator adaptor and **A450-1** Rubber Plug.

K YA845 Anti-Freeze & Coolant Tester. Six temperature compensating discs show degree of protection thru magnified tube...in warm or cold engines. Scale range: +25°F (-7°C) to overprotection. 7 $\frac{1}{2}$ " long flexible rubber hose. 18 $\frac{3}{4}$ " long overall.

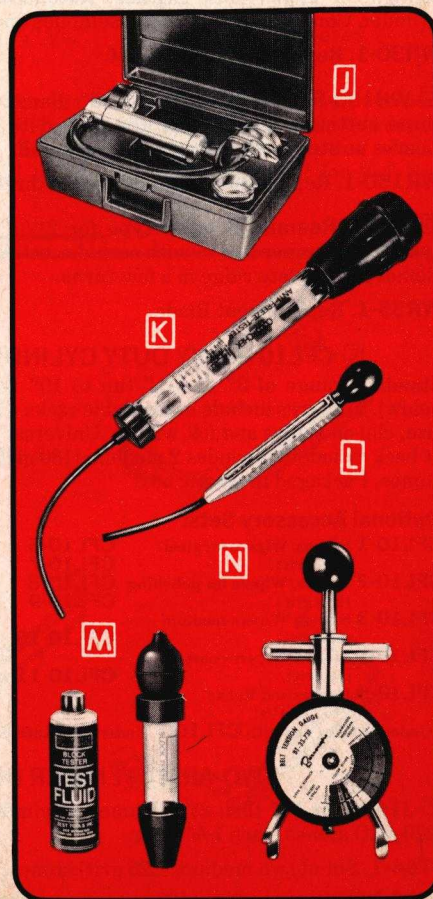
L GA298A Anti-Freeze & Coolant Tester. Degree of protection indicated by number of balls floating in glass tube filled with radiator solution. Registers to -40°F. whether solution is hot or cold. 4 $\frac{5}{8}$ " long hose.

M Block Combustion Leak Tester. Spots combustion leaks quickly. Test liquid changes color from blue to yellow if combustion gas is present in radiator solution...stays blue if okay. If leak is detected, exact location is found by removing one spark plug at a time and re-testing until liquid again turns yellow.

GA170B Block Check Kit. Includes, Tester, Liquid and Bulb.

GA172B Test Liquid. 16-ounce bottle.

N GA424A Belt Tension Gauge. Range is 30 to 180 lbs., 130 to 800 Nm. Squeeze handle, place gauge on drive belt, release handle and read.





CAUTION: Always wear approved eye protection.

CYLINDER RIDGE REAMERS

A WR25 Reamer. For 2 $\frac{9}{16}$ " thru 4 $\frac{7}{8}$ " diameter cylinders (6" with optional blades). Has three self-centering, expandable cutters. Blade bottoms serve as guides. Reamer supported in cylinder by clamp slipped over stud and bolted to cylinder block. WR25 and blades packed in metal case. Includes:

WR25-3 set of 3 blades of 3 $\frac{3}{4}$ " thru 4 $\frac{7}{8}$ " dia. cylinders.

WR25-4 set of 3 blades of 2 $\frac{9}{16}$ " thru 3 $\frac{3}{4}$ " dia. cylinders.

Optional WR25-5 set of 3 blades 4 $\frac{7}{8}$ " thru 6" dia. cylinders also available.

B WR30 Reamer. Lathe-type for 3" thru 5" diameter cylinders in straight or angle block engines. Automatically centers itself in cylinder. Consists of two main assemblies and threaded feed screw.

WR30-1. Replacement Cutter Bit.

C WR150 Reamer. For 2" thru 3" diameter cylinders. Includes three cutting blades which are piloted to prevent over-cutting. Leaves no step or shoulder on cylinder wall.

WR150-1. Replacement Blades — set of three.

D WR35 Reamer. Scraper type for 2 $\frac{1}{16}$ " thru 5 $\frac{5}{16}$ " diameter cylinders. Scraper action with carbide cutter assures easy turning. Removes complete ridge in a few turns.

WR35-1. Replacement Blade.

E CFL10 HEAVY DUTY CYLINDER HONE SET

Standard range of 3" to 4 $\frac{1}{4}$ " (up to 10" with optional rack sets below). Features include expandable racks which adjust to cylinder size, clip-on stones and felt wipers. Universal joint action for getting at back cylinders. Includes 2 medium (180 grit) and 2 coarse (80 grit) stones. Packaged in plastic box.

Optional Accessory Sets:

CFL10-1 Stones/Wipers for steel (150 grit).

CFL10-2 Stones/Wipers for polishing (280 grit).

CFL10-3 Stones/Wipers-medium (180 grit).

CFL10-4 Stones/Wipers-coarse (80 grit).

CFL10-5 Undersized Racks 2 $\frac{3}{4}$ " to 4 $\frac{1}{2}$ "

†Undersized for use with **CFL10-5** Undersized Rack Set.

CFL10-6 Standard Racks 3" to 4 $\frac{1}{4}$ "

CFL10-7 Standard Racks 4" to 6 $\frac{1}{2}$ "

CFL10-8 Standard Racks 6 $\frac{1}{2}$ " to 10"

CFL10-9 †Stones/Wipers for polishing (280 grit).

CFL10-10 †Stones/Wipers-medium (180 grit).

CFL10-11 †Stones/Wipers-coarse (80 grit).

TWO-ARM CYLINDER HONE

F JT64. For 1 $\frac{1}{2}$ " thru 2 $\frac{1}{4}$ " diameter cylinders with two medium (220 grit) stones, each 1 $\frac{1}{8}$ " long.

JT64-1. Set of two medium (220 grit) stones.

JT64-14. Set of two fine (400 grit) stones.

THREE-ARM CYLINDER HONES

The two **G** models below feature new arm expansion, controlled on a flat surface by constant adjustable spring tension. Heavy-duty arms attached with rivet pins.

G CF63. For 3 $\frac{1}{4}$ " thru 2 $\frac{1}{2}$ " diameter cylinders.

G CF68. For 1 $\frac{1}{4}$ " thru 3 $\frac{1}{2}$ " diameter cylinders. This model also ideal for honing brake cylinders.

Stone Sets for **G** (3 included).

Use with **CF63** and **CF68** models.

CF63-1 1 $\frac{1}{8}$ " Medium (240 grit). **CF63-34** 3 $\frac{1}{4}$ " Fine (400 grit).

JT63-21 2" Medium (220 grit). **CF63-14** 1 $\frac{1}{8}$ " Fine (400 grit).

JT63-24 2" Fine (400 grit).

CF63-100 Brake Cylinder Honing Stones. Consists of 3 coarse grit, 1 $\frac{1}{8}$ " stones. Offered as an accessory for both the **CF63** and the **CF68**. Packaged in plastic box.

The two **H** models below are self-centering and self-bottoming. They feature "spread limiters" which control the hone diameter. Spring action gives proper tension when using 1 $\frac{1}{4}$ " or 1 $\frac{1}{2}$ " electric drills.

H CF60CS. For 2" thru 5 $\frac{1}{4}$ " diameter cylinders. Includes three medium (220 grit) stones:

CF61-12S 3" Replacement Stones (3), medium (220 grit).

CF61-14S 3" Replacement Stones (3), fine (400 grit).

CF61-100 3" Replacement Stones (3), coarse (100 grit).

H CF62CS. For 2" thru 6 $\frac{3}{4}$ " diameter cylinders. Includes three medium (220 grit) stones:

CF62-12S 4" Replacement Stones (3), medium (220 grit).

CF62-14S 4" Replacement Stones (3), fine (400 grit).

J FLEX-HONES®

For fast, efficient deglazing of cylinders. Feature globules of silicone carbide laminated to the ends of high-density bristles, attached to flexible shaft. Units impart a consistent cross hatch for oil retention and instant ring seating. The "BCG" series listed below have a grit of 180 and are 12" long. *Not available for export.*

BCG83 3 $\frac{3}{4}$ " (83 mm)

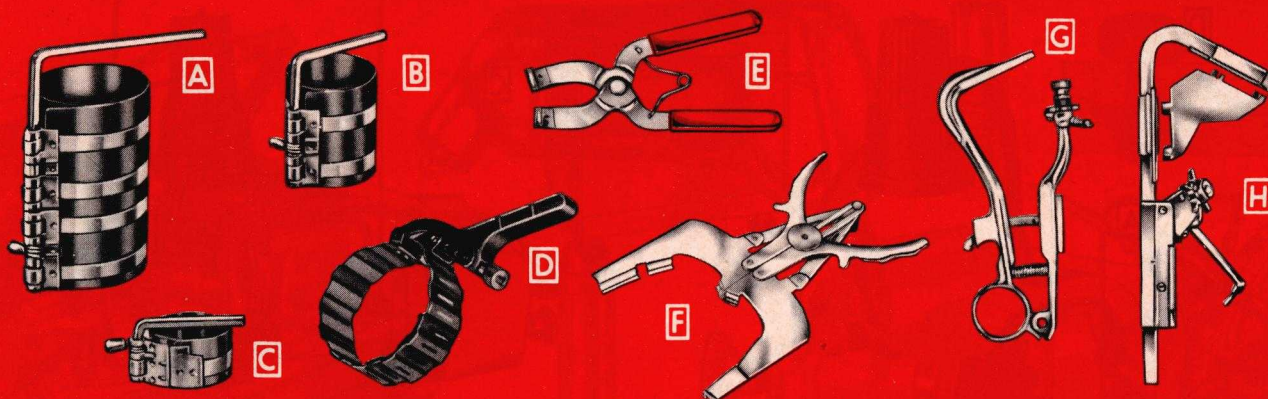
BCG95 3 $\frac{3}{4}$ " (95 mm)

BCG89 3 $\frac{1}{2}$ " (89 mm)

BCG105 4 $\frac{1}{8}$ " (105 mm)

BCG118 4 $\frac{5}{8}$ " (118 mm)

(FLEX-HONES is a registered tradename of Brush Research Mfg. Co., Inc.)



RING COMPRESSORS

Clutch control holds tension bands in position as piston is inserted into cylinder. "V" beads on lower edge of belt keep tool from entering cylinder. 1/2" wide spring bands equalize tension over belt width, so ring assembly may be compressed into groove until flush with piston. **RC40C** can be used upside down for Chevrolet, Mercury and Ford trucks with angled blocks.

A RC150A Compressor. 4-band 3 1/2" to 7" cap., 6 1/2" deep.

B RC40C Compressor. 2-band 2 1/8" to 5" cap., 3 1/2" deep.

B RC50C Compressor. 2-band. 3 1/2" to 7" cap., 3 1/2" deep.

C RCL30 Compressor. 1-band model. 2 1/2" to 5" capacity, 1" deep. May be disassembled and removed from connecting rod when cylinder is pressed down over piston.

D RCW60 Compressor. This low friction, wrinkle band compressor is for 3" to 5" pistons. Also for vehicles whose cylinders are pushed over pistons from the top. Thumbscrew nut provides precise adjustment. For 1 1/2" bands.

PISTON RING SPREADERS

E PRS8 Piston Ring Spreader. Installs piston rings from 3/64" to 1/4" thick. Eliminates breakage or distortion of rings. 7" long.

F Piston Ring Expanders. Remove or install both step-cut and diagonal-cut rings. Spring tension on expander eliminates the need for adjustment.

PRS9. 2" to 4" ring capacity.

PRS10. 2 3/4" to 4 1/4" ring capacity.

PRS11. 1 1/4" to 2 1/4" ring capacity.

RING GROOVE CLEANERS

G RC500 Cleaner. For pistons with ring grooves of 5/64", 3/32", 1/8" or 3/16" and diameters of 2 1/2" thru 5". Threaded guide included.

RC500-1. Replacement Cutter Blade.

RC500-11. Cutter for 1/4", 5/16", 2.5 mm and 3.0 mm grooves.

H RC510 Cleaner. For pistons 1" thru 5" diameter. Includes **RC510-6** Replacement Knurled Nut and **RC510-3** Blade Adaptor which fits pistons 1" thru 2 1/4". Also includes two cutter wheels: **RC510-1** for 5/64", 3/32", 1/8", 5/32", 3/16" and **RC510-2** for 1/16", 5/64", 3/32", 5/32", 3/16".

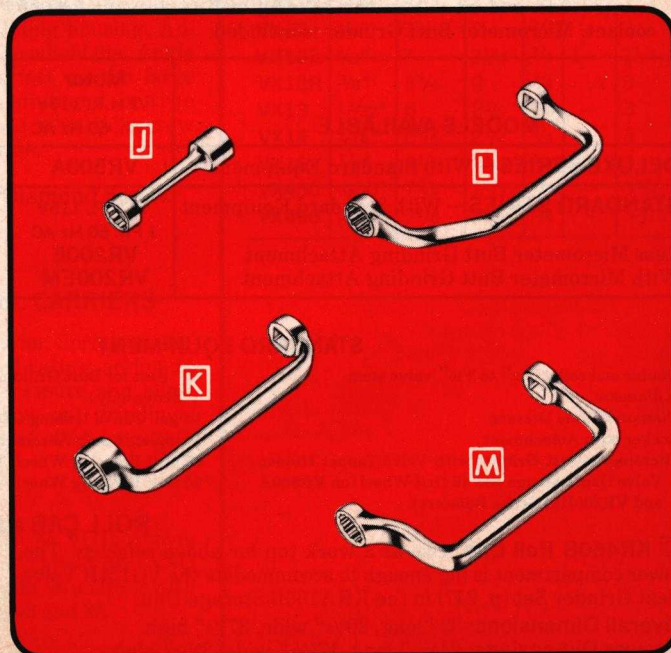
CYLINDER HEAD WRENCHES/ TORQUE ADAPTORS

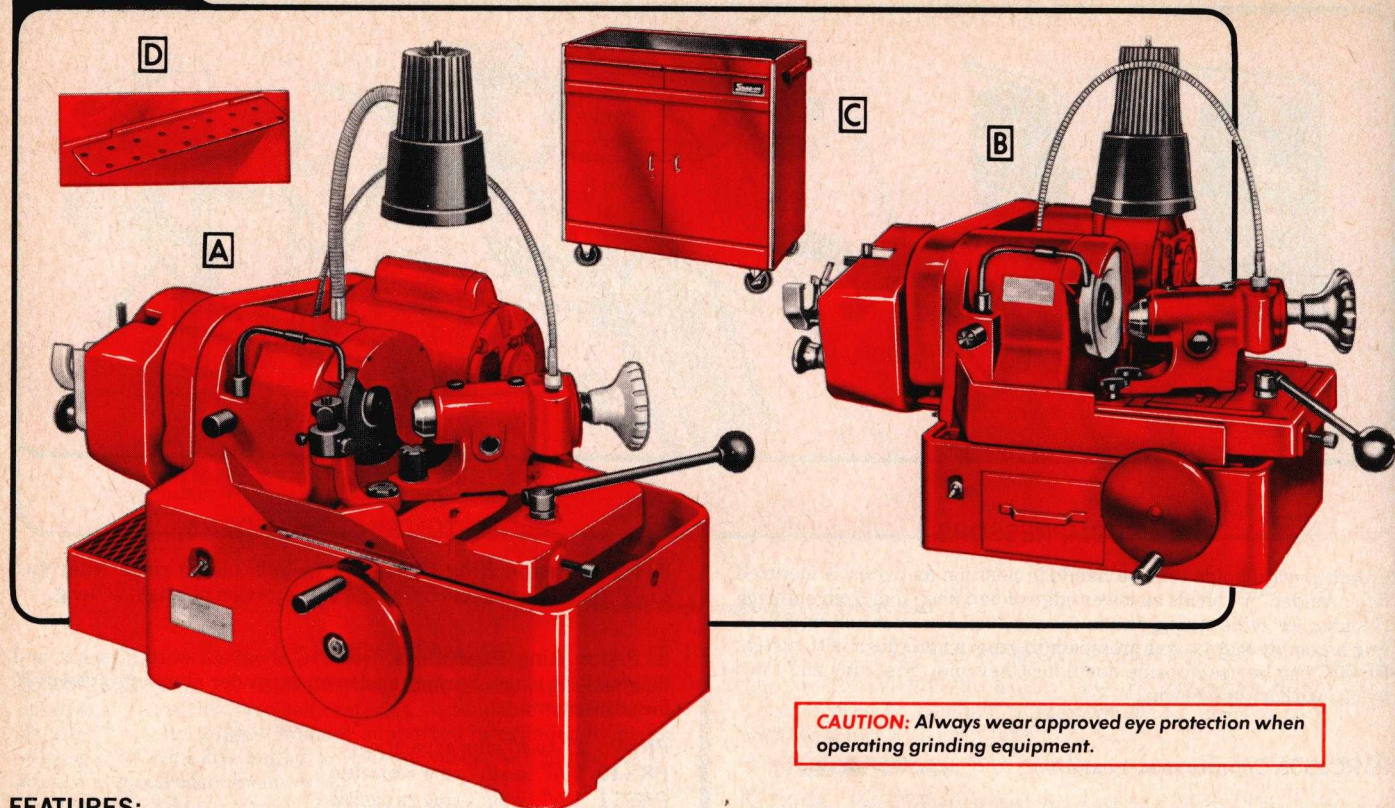
1/2" DRIVE...12 POINT...CHROME

Designed for getting around obstructions and reaching into restricted areas when removing and torquing cylinder heads. Useful in a variety of applications. See dimensions below.

Stock No.	Wrench Size	Clearance Between Heads	Clearance Head Centers to Shank	Overall Length
J S8694	11/16"	—	—	4"
†K S8684B	13/16"	4 5/8"	23/32"	6 1/8"
L S9513C	3/4"	5 11/32"	2 1/4"	6 1/2"
M S8663B	11/16"	6 11/32"	1 31/32"	7 3/16"

•Flank Drive. †For late model John Deere, Massey Ferguson and J.I. Case tractors.





CAUTION: Always wear approved eye protection when operating grinding equipment.

FEATURES:

- Reface valves at angles from 15° to 45° with stops at 20° and 30° with minus 1° settings. Uses straight-sided grinding wheels.
- Heavy, rugged, reinforced cast iron base to minimize vibration.
- Right-hand table-traverse arm is adjustable to any position.
- Double-grip, true-center collet handles valve stems $\frac{9}{32}$ " to $\frac{9}{16}$ ".
- Flexible drive shaft assures constant speed ratio between wheel and valve.

- Oil and grease fittings are out in the open.
- Baffled coolant tank delivers clean fluid to large capacity vane-type pump.
- Tapered rocker arm attachment bushings are included to fit all sizes of rocker arms.
- Quick-set valve stop requires only one setting to complete all valves in a series.
- Adjustable stop protects valve stem and spindle from contact against the grinding wheel.

A VR500A Deluxe Series Refacers. The base is larger and heavier than the standard models and all working parts, such as worktable ways, wheel spindle and feed screw, are pre-loaded and never require adjustment for wear. Serrated coolant tank for easy level and quality check; worktable and ways are heavier construction and sit within the housing wall to prevent loss of coolant. Micrometer Butt Grinder is included.

B VR200E Standard Series Refacers. Fine machines with many features identical to the deluxe models. Worktables have lathe-type ways and are pre-loaded for smooth self-adjusting action. Micrometer Butt Grinder is optional equipment. A "V" rest for butt grinding is included.

VR200EM Series. Include Micrometer Butt Grinders.

MODELS AVAILABLE	Motor 1/2 H.P., 115V 1 Ph. 60 Hz AC	Motor 1/2 H.P., 230V 1 Ph. 60 Hz AC	Motor 1/2 H.P., 115V 1 Ph. 50 Hz AC	Motor 1/2 H.P., 230V 1 Ph. 50 Hz AC	ALL MODELS
DELUXE SERIES — With Standard Equipment	VR500A	VR501A	VR504A	VR505A	Valve Face Capacity: 3/4" to 4" Dia.
STANDARD SERIES — With Standard Equipment	1/3 H.P., 115V 1 Ph. 60 Hz AC VR200E VR200EM	1/3 H.P., 230V 1 Ph. 60 Hz AC VR201E VR201EM	1/3 H.P., 115V 1 Ph. 50 Hz AC VR204E VR204EM	1/3 H.P., 230V 1 Ph. 50 Hz AC VR205E VR205EM	Valve Stem Capacity: (w/optional Collets) .187" to .688" Dia.
Less Micrometer Butt Grinding Attachment					
With Micrometer Butt Grinding Attachment					

STANDARD EQUIPMENT

Double end collet $\frac{9}{32}$ " to $\frac{9}{16}$ " valve stem diameter.
Diamond Stone Dresser.
Rocker Arm Attachment.
Micrometer Butt Grinder with Valve Tappet Holder,
Valve Depth Gauge and 46 Grit Wheel (on VR500A and VR200EM Series Refacers).

"V" Rest for Butt Grinding (on VR200E Series only).
1/2 gal. Can of Honing Oil (2) (VR2M110B).
Complete Lamp Assembly.
80 Grit Refacing Wheel ($\frac{3}{8}$ ").
80 Grit Refacing Wheel ($\frac{1}{4}$ ").

ROLL CAB AND VALVE RACK

C KR460B Roll Cab. Use as a work top for above refacers. The lower compartment is big enough to accommodate the VG124H Valve Seat Grinder Set (p. 247) in the KRA100B Storage Unit.

Overall Dimensions: 32" long, 20 $\frac{7}{8}$ " wide, 37 $\frac{1}{2}$ " high.

Drawer Dimensions: 24 $\frac{3}{32}$ " long, 17 $\frac{1}{16}$ " wide, 3 $\frac{9}{16}$ " high.

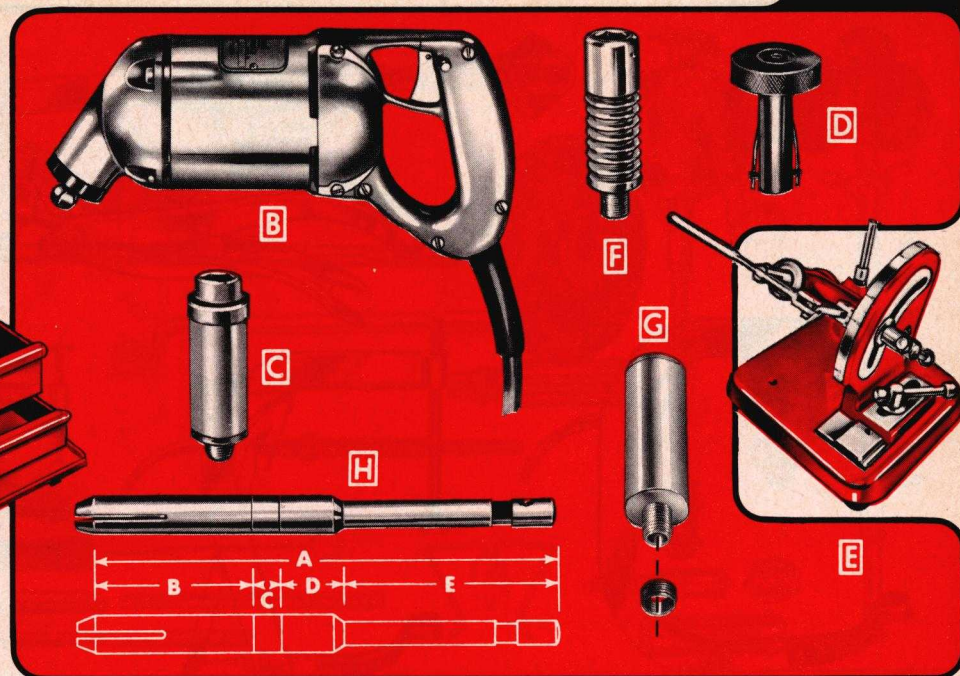
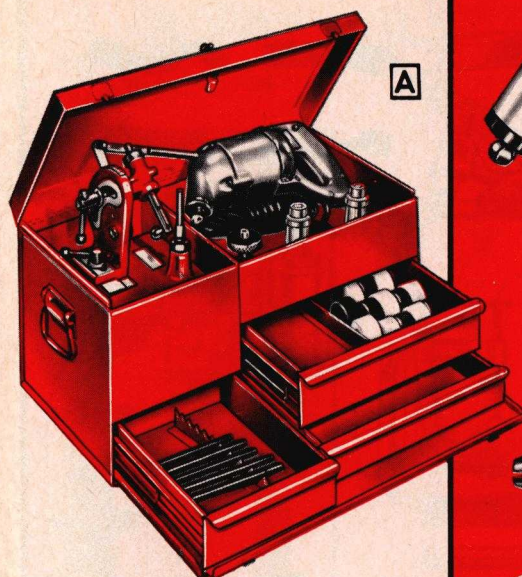
OPTIONAL EQUIPMENT

VRC1 Vinylite Cover for Refacers.
VR2W36 Collet, $\frac{3}{16}$ " to $\frac{5}{16}$ " stem capacity.
VR2W33 Collet, $\frac{9}{32}$ " to $\frac{9}{16}$ " stem capacity.
VR2W34 Collet, $\frac{1}{4}$ " to $\frac{3}{8}$ " stem capacity.
VR2W35 Collet, $\frac{1}{2}$ " to $\frac{11}{16}$ " stem capacity.
VR2W37 Collet, $\frac{9}{32}$ " to $\frac{13}{32}$ " stem capacity.
VR2M89 46 Grit Butt Grinding Wheel.

KRA16 Valve Rack. This handy roll cab accessory is designed to hook over the lip of the KR460B Roll Cab at left. 16 holes in the valve rack will hold as many valves.

VALVE SEAT GRINDER SET & PILOTS

Engine



A VG124HB Valve Seat Grinder Set. Includes set contents below in KRA100B Metal Box. Two wheel carriers are included for quick interchange of roughing and finishing stones.

VG124H Set. Set without Metal Box.

VG16B Driver
VG25B Dresser
VG15 Carrier (2)
VX1 Pilot Wrench

Pilots:

VX10	5/16"	VX275	7 mm
VX11L	11/32"	VX315	8 mm
VX12	3/8"	VX354	9 mm
VX14	7/16"		

Valve Grinding Wheels:

Wheels		Diam.	Bushing Thread
▲	●		
VSS40R	VSS40M	1 1/4"	5/8"-18
VSS44R	VSS44M	1 3/8"	5/8"-18
VSS48R	VSS48M	1 1/2"	5/8"-18
VSS52R	VSS52M	1 5/8"	5/8"-18
VSS56R	VSS56M	1 3/4"	5/8"-18
VSS60R	VSS60M	1 7/8"	5/8"-18
VSS64R	VSS64M	2"	5/8"-18
VSS68R	VSS68M	2 1/8"	5/8"-18
VSS72R	VSS72M	2 1/4"	5/8"-18

▲Rough cut cast iron and medium cut stellite seats.
 ●Medium cut cast iron and fine cut stellite seats.

B VG16B Heavy Duty Driver. Has 55° angle drive to provide good operating balance and working clearance. Hex ball driving spindle incorporates a built-in vibration action which lifts the stone from the seat once each revolution. This prevents loading the stone, speeds grinding and reduces stone wear. All grinding is concentric, cutting the entire circumference of the seat and assuring correct alignment. Motor is 115 volts, 5.5 amps, 60 Hertz AC/DC. Free running speed is 12,000 R.P.M. 9 1/2 feet of 3-wire cable. Natural aluminum finish. 6 3/4 lbs. net weight. 11 1/2" long.

CAUTION: Always wear approved eye protection when operating grinding equipment.

C VG15 Ball Bearing Wheel Carrier. Inner sleeve engages pilot groove to prevent turning and wheel carrying outer sleeve rides and rotates on sealed ball bearings around inner sleeve. For heavy duty or very frequent use. 4 3/8" long. Has 5/8"-18 threads.

D VX1 Pilot Wrench. A convenient tool for inserting and removing valve guide pilots. Two spring loaded plugs lock into pilot hole. Push button releases the lock.

E VG25B Diamond Wheel Dresser. Dresses any angle on all type wheels to 6 1/2" dia. Plunger is carried by sliding housing. Adjustment made quickly to wheel dia. Angle setting index positions fast on the large gauge. Plunger holds diamond in true alignment. Diamond has over 1/2" screw adjustment. Cast iron base.

VG25-6 Replacement Diamond Screw.

OPTIONAL WHEEL CARRIERS

F VG10-2D Wheel Carrier. Spring mounting permits vertical vibrating action to prevent undue wheel pressure and allow centrifugal force to throw out grindings. Cooling fins dissipate heat. 4 3/8" long. 5/8"-18 threads.

G VG18. Similar design as VG15 above, except it features 1/16"-16 thread for "VSU Series" Wheels (p. 248), plus an adaptor with 11/16"-16 threads for VSU32 and 36.

VG18-1. 11/16"-16 Adaptor.

See other Valve Tools on pages 246, 248 and 249.

H OPTIONAL PILOTS

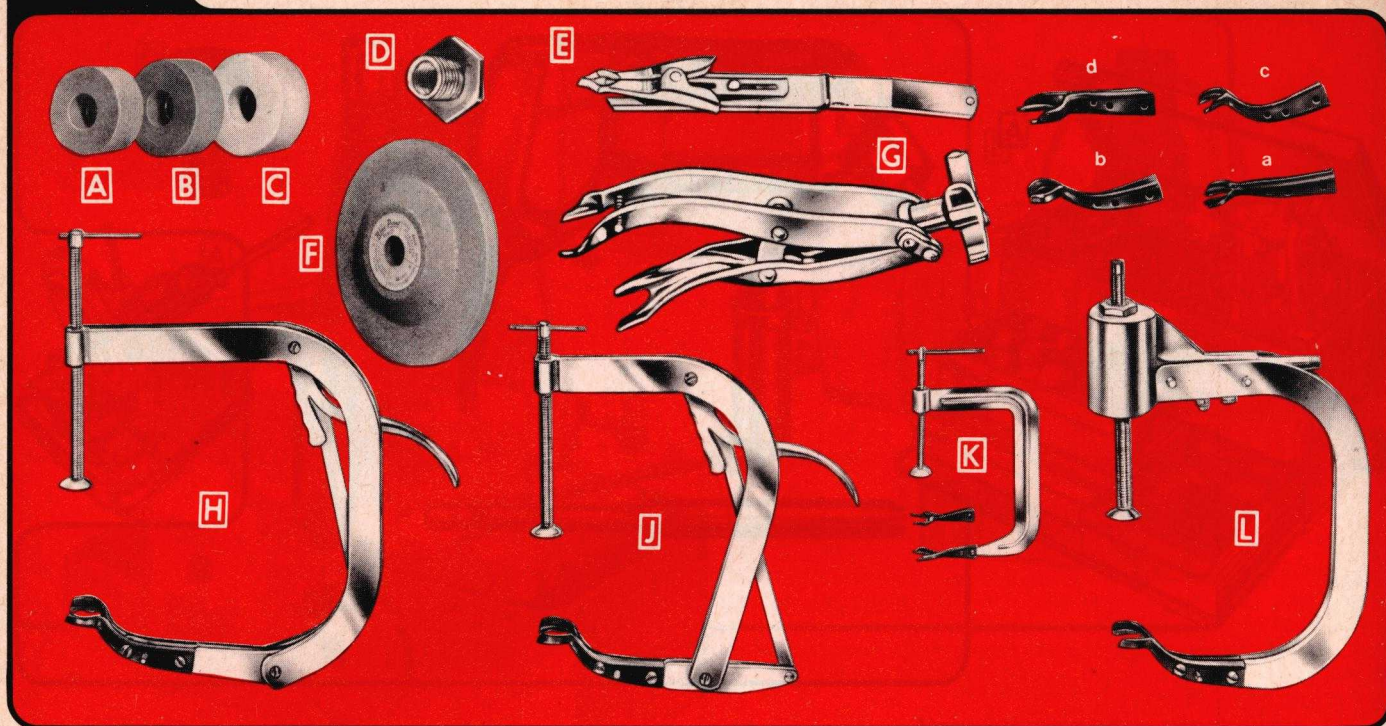
Grooves lock on Ball Bearing Wheel Carrier to prevent turning. Include expansion range of -.003" to +.007" (except the "R" models which go up to +.015").

U.S.

Stock No.	Guide Size	Dimensions in Inches				
		A	B	C	D	E
VX8	1/4"	5 11/32	1 3/32	7/8	—	3 3/8
VX9	9/32"	5 11/32	1 3/32	7/8	—	3
VX10	5/16"	5 1/4	1 3/4	3/4	—	2 3/4
VX10L	5/16"	6 1/4	1 3/4	3/4	1/2	3 1/4
VX10R	5/16"	5 1/4	1 3/4	3/4	1/2	2 3/4
VX11	11/32"	5 1/4	1 3/4	3/4	—	2 3/4
VX11L	11/32"	6 1/4	1 3/4	3/4	1/2	3 1/4
VX11R	11/32"	5 1/4	1 3/4	3/4	1/2	2 3/4
VX12	3/8"	5 3/4	2	3/4	—	3
VX12L	3/8"	7	2 1/4	3/4	1	3 1/4
VX12R	3/8"	5 3/4	2	3/4	1/2	3
VX13	13/32"	6	2 1/4	3/4	—	3
VX14	7/16"	6 1/4	2 1/2	3/4	—	3
VX16	1/2"	6 1/4	2 1/2	3/4	—	3
VX450	.450"	7 3/4	2 1/2	3/4	—	3 5/8
VX496	.496"	7 1/8	2 1/2	3/4	—	3 5/16

METRIC

Stock No.	Guide Size in mm	Dimensions in Inches				
		A	B	C	D	E
VX236	6	4 1/32	25/32	7/8	—	2 3/8
VX255	6.5	4 13/16	15/16	7/8	—	2 3/8
VX275	7	4 13/16	15/16	7/8	—	2 3/8
VX295	7.5	5 9/32	1 17/32	3/4	—	3
VX315	8	5 9/32	1 25/32	3/4	—	2 3/4
VX354	9	5 9/32	1 17/32	3/4	—	3
VX393	10	5 3/4	1 25/32	3/4	—	3
VX433	11	5 1/2	1 5/8	7/8	—	3



CAUTION: Always wear approved eye protection when operating grinding equipment.

VALVE SEAT GRINDING WHEELS

A "VSS-R and VSU-R Series" 60-grit, aluminum oxide wheels rough cut cast iron seats and medium cut stellite seats. Green labels for easy identification.

B "VSS-M and VSU-M Series" 80-grit, aluminum oxide wheels medium cut cast iron seats and fine cut stellite seats. Red labels for easy identification.

C "VSS-F and VSU-F Series" 120-grit, silicon carbide wheels finish cut cast iron seats and polish stellite seats. Blue labels for easy identification.

...for Snap-on VG15 and VG10-2D Carriers (page 247). All wheels must be dressed before use.

...for Universal use. Use with Keystone, Kwikway, K.O. Lee, Sioux and Thor grinders (except VSU32 and VSU36 which are used with Black & Decker). All wheels must be dressed before use.

Wheel Diameter	Wheel Depth	Bushing Thread	A Stock No.	B Stock No.	C Stock No.	Wheel Diameter	Wheel Depth	Bushing Thread	A Stock No.	B Stock No.	C Stock No.
1"	1 1/4"	5/8"-18	UVS32	...	...	1"	1 1/4"	9/16"-16	VSU32R	VSU32M	VSU32F
1 1/8"	1 1/4"	5/8"-18	UVS36	...	...	1 1/8"	1 1/4"	9/16"-16	VSU36R	VSU36M	VSU36F
1 1/4"	1"	5/8"-18	VSS40R	VSS40M	VSS40F	1 1/4"	1"	11/16"-16	VSU40R	VSU40M	VSU40F
1 3/8"	1"	5/8"-18	VSS44R	VSS44M	VSS44F	1 3/8"	1"	11/16"-16	VSU44R	VSU44M	VSU44F
1 1/2"	1"	5/8"-18	VSS48R	VSS48M	VSS48F	1 1/2"	1"	11/16"-16	VSU48R	VSU48M	VSU48F
1 5/8"	1"	5/8"-18	VSS52R	VSS52M	VSS52F	1 5/8"	1"	11/16"-16	VSU52R	VSU52M	VSU52F
1 3/4"	1"	5/8"-18	VSS56R	VSS56M	VSS56F	1 3/4"	1"	11/16"-16	VSU56R	VSU56M	VSU56F
1 7/8"	1"	5/8"-18	VSS60R	VSS60M	VSS60F	1 7/8"	1"	11/16"-16	VSU60R	VSU60M	VSU60F
2"	1"	5/8"-18	VSS64R	VSS64M	VSS64F	2"	1"	11/16"-16	VSU64R	VSU64M	VSU64F
2 1/8"	1"	5/8"-18	VSS68R	VSS68M	VSS68F	2 1/8"	1"	11/16"-16	VSU68R	VSU68M	VSU68F
2 1/4"	3/4"	5/8"-18	VSS72R	VSS72M	VSS72F	2 1/4"	3/4"	11/16"-16	VSU72R	VSU72M	VSU72F
2 3/8"	3/4"	5/8"-18	VSS76R	VSS76M	VSS76F	2 3/8"	3/4"	11/16"-16	VSU76R	VSU76M	VSU76F
2 1/2"	3/4"	5/8"-18	VSS80R	VSS80M	VSS80F	2 1/2"	3/4"	11/16"-16	VSU80R	VSU80M	VSU80F
2 3/4"	3/4"	5/8"-18	VSS88R	VSS88M	VSS88F	2 3/4"	3/4"	11/16"-16	VSU88R	VSU88M	VSU88F
3"	3/4"	5/8"-18	VSS96R	VSS96M	VSS96F	3"	3/4"	11/16"-16	VSU96R	VSU96M	VSU96F

D VG10-5A Bushing Adaptor. Converts 11/16"-16 bushing threads above into 9/16"-16 for Black & Decker.

E CF7B Valve Key Replacer. Replaces all split-type valve keys in a minimum of working space. Sliding base. Easy to load.

VALVE REFACING WHEELS

F "VRW Series" 80-grit, aluminum oxide wheels are designed for now common stellite valves. Dressed to 90° 1/4" and 3/8" wheels are standard equipment on Snap-on grinders. Older grinders requiring 1/2" wheels must be dressed to 15° angle.

Stock No.	Wheel Dia.	Wheel Width	Hole Size
VRW250	5"	1/4"	5/8"
VRW375	5"	3/8"	5/8"
VRW500	5"	1/2"	5/8"

G CF49A Valve Lifter. For most L-head cars with straight stem valves. 2 3/8" capacity for up to 300 lbs. coil strength. 9 1/4" long.

H CF11E. Universal type for L-head and valve in head engines.

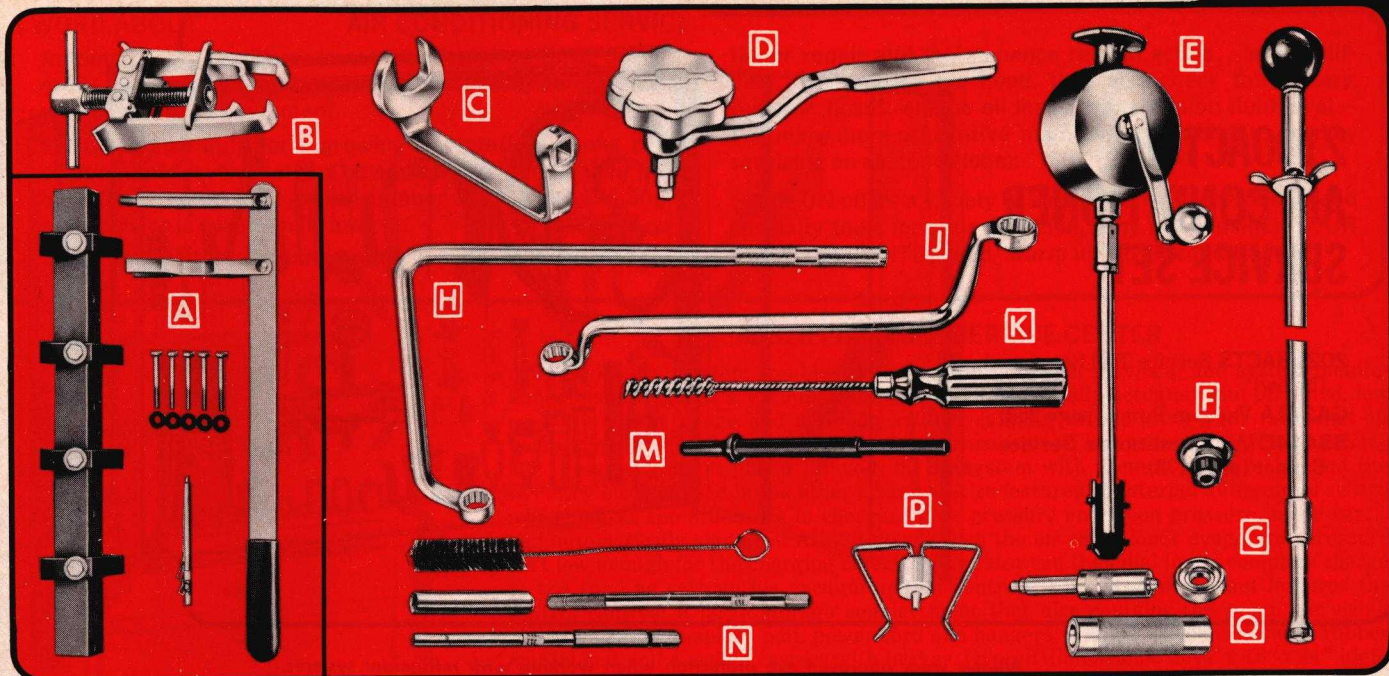
J CF17A. For high compression engines. For vehicles with overhead valves.

Stock No.	Spring Dia.	Dimensions	Jaw Pairs Included			
			CF19-3A	CF19-4	CF21AP	CF22CP
CF11E	7/8"-2 1/2"	10 1/2" x 9 1/2"	...	...	X	X
CF17A	1" -2"	9 3/4" x 7"	...	...	...	X
CF19	3/4"-1 1/16"	5 1/8" x 3 3/8"	X	X	...	...
CF700	1" -2 1/2"	10" x 8"	...	...	X	X

Extra Jaws for Above Lifters (except CF19)

a. CF21AP	Low Offset	7/8"-1 7/8"	c. CF22CP	Medium Offset	1" -2"
b. CF22AP	Low Offset	1" -2"	d. CF23P	Large Straight	1 1/2"-2 1/2"

See other Valve Tools on pages 246, 247 and 249.



A VL1 Camshaft Tool. For 140 cu. in. 4-cylinder Monza, Vega and Astre cars. Quickly removes or replaces camshaft, valve springs and valve spring keepers. Includes: aluminum body with four depressors plus necessary mounting hardware, spring compressor assembly and magnetic pick-up tool.

B CG90 Valve Spring Compressor. Self-leveling action compensates for any helix angle spring. Jaw length can be adjusted. Pulls with equal pressure on both jaws.

C S6406 Valve Adjustment Wrench. For Pinto and Datsun with 2 litre engines. $\frac{3}{8}$ " square drive with 19 mm open end. Offset to clear rocker arms. 4 $\frac{1}{2}$ " long.

S6014 Valve Adjustment Wrench. For 6- and 8-cylinder Mercedes Benz. $\frac{1}{2}$ " drive with 17 mm open end. *Limited access does not allow use on rear cylinder of left bank of V-8 engines; use FCOM17 Crowfoot Wrench for this adjustment.* Also applicable to some Datsun overhead cam cars. 4 $\frac{5}{8}$ " long.

S6007 Valve Adjustment Wrench. For all Datsun cars with 1.6 litre engines. $\frac{1}{2}$ " drive with 17 mm open end. 8" long.

D V22 Overhead Valve Adjusting Tool. For Ford V-8, Mercury, Lincoln, Ford "6", F-7, F-8 and cab-over-engine trucks and Chevrolet "6", $\frac{1}{2}$ " drive socket required for all valve adjusting work. Offset handle to clear manifold. 7 $\frac{1}{2}$ " long.

E VG2A Valve Lapper. Cast iron housing and heat treated gears. Shaft has ball bearing thrust. Blade oscillates rapidly and advances $\frac{1}{6}$ turn with each turn of handle. Includes:
VL90-32 Universal Driving Bit.

ESD76 Valve Lift Spring (not shown). Use under valve when using lappers.

F Rubber Suction Cups. Hold non-slotted valves. Fit shaft of VG2A at left.

VLC28 Suction Cup. $\frac{7}{8}$ " diameter.

VLC40 Suction Cup. 1 $\frac{1}{4}$ " diameter.

VLC56 suction Cup. 1 $\frac{3}{4}$ " diameter.

G S8690 Hydraulic Tappet Tool. Removes tappets when deposits prevent easy removal. Knob expands collet. Pulling, twisting action removes tappet easily. 14 $\frac{1}{4}$ " long.

H S5930 Valve Tappet Wrench. Adjusts valve tappet lock-nuts on 1974-current VW van or bus models with Type 411 engines. "Flank Drive" 14 mm "BOXOCKET" is offset 20° to clear heater box. 11" long.

I S5922 Tappet Adjustment Wrench. Double-ended 13 mm "Flank Drive" "BOXOCKET" offset at both ends for access to Types 1, 3 and 4 VW engines. 10 $\frac{7}{8}$ " long.

K Valve Guide Brushes. Made of wire woven into twisted wire shank. Fluted wood handles for firm grip.

AC10 Brush. $\frac{5}{16}$ " diameter.

AC11 Brush. $\frac{11}{32}$ " diameter.

AC12 Brush. $\frac{3}{8}$ " diameter.

L GA285 Camshaft Bearing Remover and Inserter Set. Removes and inserts camshaft bearings in all engines. Will fit slightly undersize or slightly oversize bearings. Packaged in its own metal box. Set includes a driving shaft, driving shaft extension, an expander that fits the shaft or the extension, plus five split driving plugs, two driving collars and a centering cone.

M PH86 Valve Guide Remover Bit. Use with PH45A or PH50D Air Hammers (p. 164). 9 mm bit is for VW and Porsche 911 air-cooled engines. Also use as drift punch. *Wear approved eye protection.*

PH83. Same as PH86 above, except with 8 mm bit.

N Valve Guide Knurler Sets. Restore worn guides to original size. Use knurling tap in $\frac{1}{2}$ " drill. Each set includes knurling tap, resizer and cleaning brush.

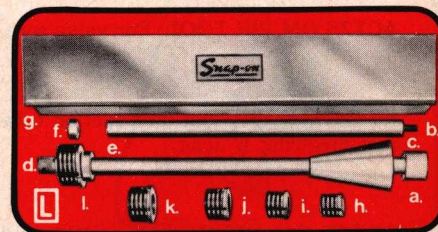
GA409 Set. $\frac{5}{16}$ "

GA410 Set. $\frac{11}{32}$ "

GA411 Set. $\frac{3}{8}$ "

P GA264 Rocker Arm Plug Set. For cars with hollow, oil-fed pushrods. Ends oil splash while adjusting valves. 16 plugs included.

Q GA318 Overhead Valve Tool. Services valve keepers on overhead valve engines and replaces seals. Fits $\frac{3}{8}$ " valves on all cars and light trucks. Use in place of C-clamps or valve spring compressors to prevent possible damage. Magnet helps prevent keeper loss. *Caution: wear approved eye protection.*



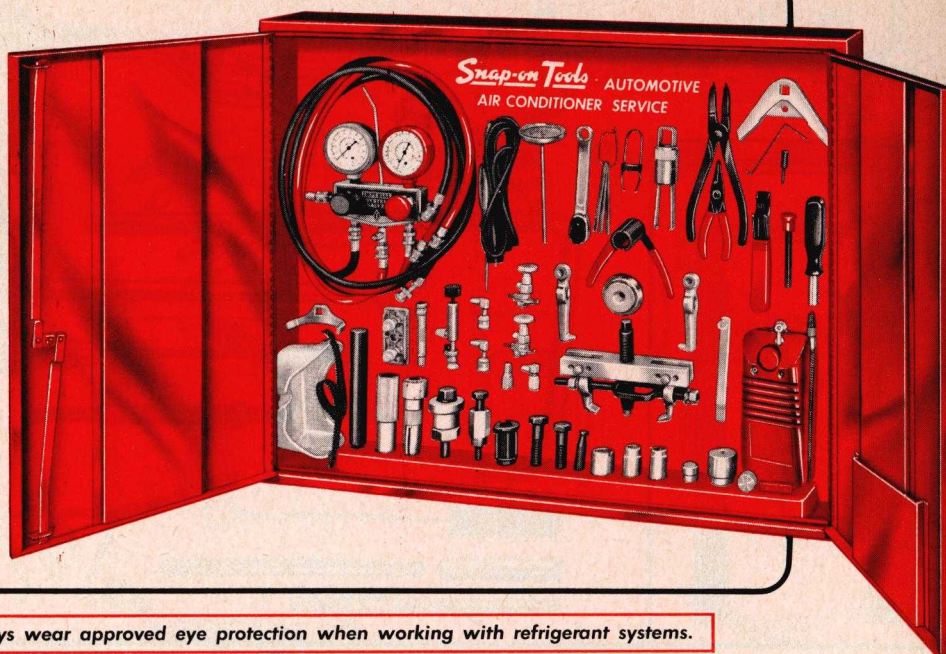
Stock No.	Description	Driving Plugs		
		Stock No.	Range (Inches)	Set of 4 O-Rings
a. GA285-11	Driver Bar Unit	h. GA285-1	1.475 to 1.700	GA285-2
b. GA285-12	Driver Bar Ext.	i. GA285-3	1.700 to 1.925	GA285-4
c. GA285-13	Guide Cone	j. GA285-5	1.925 to 2.150	GA285-6
d. GA285-14	Expander	k. GA285-7	2.150 to 2.375	GA285-8
e. GA285-18	Washer, Large	l. GA285-9	2.375 to 2.690	GA285-10
f. GA285-19	Washer, Small			
g. GA285-20	Metal Box			

2100ACTSB AIR CONDITIONER SERVICE SET

2021HACTS Service Tool Set
(below)

GA271A Vacuum Pump (page 252)

SS444C Air Conditioner Service
Banner (page 173)



CAUTION: Always wear approved eye protection when working with refrigerant systems.

2021HACTSB SERVICE TOOL SET

COMPLETE SET INCLUDES THE FOLLOWING:

GA274 System Analyzer. The "heart" of this Service Tool Set, the GA274 is used for testing, purging and charging most automotive air conditioner systems. Color-coded hoses are included for both HI and LO pressure gauges.

2014ACT Basic Seal Service Set. See page 252 for components.

VE112F Tool Display Board.

KRA270A Wall Cabinet. Measures 24 $\frac{3}{4}$ " x 32 $\frac{3}{4}$ " x 6" deep. (See page 20.)

ACT25 GM VIR TOOL. For valve core.

ACT26 GM VIR Tool. For suction tube retaining ring. 6" long.

ACT27 GM VIR Tool. For POA and expansion valves. 6" long.

ACT100A Electronic Leak Detector. Clicking noise signals leak...siren signals source. (Refer to page 252 for more information.)

ACT105STV Valve Remover and Installer. For 1976-current Granada and Monarch and current Pinto, Bobcat and Mustang. 6 $\frac{1}{2}$ " long.

ACT106A Expansion Tube Installer. For all GM models plus CK series light trucks. 4" long.

ACT107A Hi-Port Side Adaptor. For current Fords with the new thread on the Hi-Port side. 1 $\frac{3}{8}$ " long.

ACT111 Compressor Oil Injector Adaptor. Has aluminum body. Holds up to 2 ounces oil. Uses pressure differential of the high and low side of air conditioner system.

CT4C Circuit Tester. Checks electrical components. Strain-relief handle. (Page 275).

GA269A 90° Adaptor (2 included). Allows hose from Analyzer to be hooked up perpendicular to compressor or from top or side.

GA273A Thermometer. Checks temperature of condensor, outside air and cooling power.

GA275A Refrigerant Can Tapper (2 included). Fits all flat top or threaded top cans.

GA279A Service Training Manual.

GA343A Charging Line. Color-coded blue for System Analyzer. 8' long.

GA451 Evacuating/Charging Valve. Repositions valve core, removing it as restriction to refrigerant flow.

GAC1575 Safety Goggles. See page 38.

PRA25 Internal Snap Ring Pliers. For GM air conditioning clutch assemblies. Canted jaws.

RF720 Refrigeration Ratchet. Opens and closes back seat service valves. Ratchet end is $\frac{1}{4}$ " drive; "BOXOCKET" end is $\frac{9}{16}$ " single hex.

YA134 Service Port Adaptor (straight). For 1976-current GM autos, 1975-current Seville and Buick V-6 engines. For gauge set or service hose.

YA135 Service Port Adaptor (90°). For 1976-current GM autos, 1975-current Seville and Buick V-6 engines. For gauge set or service hose connection.

2021HACTS Set. Above set less wall cabinet.

2021HACT Set. Above set less wall cabinet and tool display board.

A WORD ABOUT *Snap-on* AIR CONDITIONING SERVICE

Automotive air conditioners are now found on three out of every four automobiles...and more are being added each year as standard equipment.

Statistics also indicate a growing expectation among car owners that service stations be equipped to handle their air conditioner needs. And yet the number of stations providing such service is surprisingly low.

Little wonder that stations handling automotive air condi-

tioner repair and maintenance remain active...and profitable. Once under the hood, they also check the battery, radiator, hoses, engine oil leaks, transmission fluid level — and many more preventive maintenance functions...just by servicing an air conditioner.

SNAP-ON offers a variety of air conditioner service sets and specialty tools for your selection. Why not consider **YOUR PROFIT POTENTIAL** and "warm up" to air conditioners.

ACS2B PORTABLE SERVICE CENTER

Able to perform system troubleshooting, general system servicing and system maintenance tests. Includes a vacuum system with an electrically actuated shut-off valve, low pressure circuit gauge and a timing switch; cylinder of oil; refrigerant tank shut-off valve, timer and oil flow regulator; high pressure system; low pressure system; auxiliary low pressure system; plus a 110-volt, 60 Hz system with vacuum pump motor and the circuitry incorporated in the other systems. Also features an internal differential switch which senses the difference in charging tank pressure and freon pressure in the car... and automatically shuts the ACS2B down when the air conditioner evaporator pressure isn't low enough for the charging rate. The operator can then dial in the complete charge at the time he sets up his vacuum and oil controls. The all steel cabinet features the control console; a large storage compartment that also contains the pump, servicing cylinders and anti-splash pan; power cord and hangers; a large, spacious drawer; rubber mantel mat and 4 swivel casters with brakes. Overall dimensions: 26½" x 18" x 44" high.

ACSC2A OPTIONAL Vinyl Cover. Protects ACS2B console.

ACS2A27 Charging Oil. Contains one gallon of 500 viscosity oil pressurized with inert nitrogen gas. Includes standard refrigerant port fittings.

2200ACTSB AIR CONDITIONING SERVICE SET

ACS2B Portable Service Center (at left)

2021HACTSB Air Conditioning Service Tools Set (page 250)

SS444C Air Conditioner Service Banner (page 173)



ACS3 PORTABLE CHARGING STATION

Designed for mobility and portability. Features a five pound capacity charging cylinder equipped with a heater...it adjusts for volume changes in refrigerants caused by temperature changes and assures the exact amount of refrigerant required is used. Also includes a three-gauge system analyzer for testing, purging and charging the system. Designed for use with the optional Vacuum Pumps (page 252). Has heavy duty metal cart with two 8" wheels for sturdy but smooth mobility. Three trays for attaching various pieces of equipment...rear tray holds refrigerant cylinders, bottom front tray for the GA271A Vacuum Pump and top front tray for various repair tools. Also features set of 4 color-coded charging lines including a centerline isolation valve with a charging tee, a panel mounted compound gauge with a charging hose for checking EPR valves, and an outlet box which includes a fuse for overload protection and two switches for the vacuum pump motor and charging cylinder heating element.

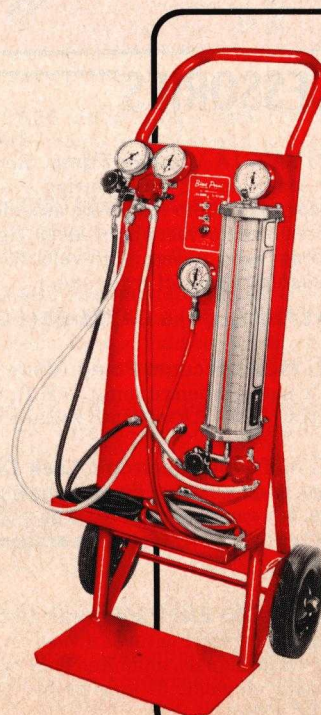
2300ACTSB AIR CONDITIONING SERVICE SET

ACS3 Portable Charging Station (at right)

2021HACTSB Air Conditioning Service Tools Set (page 250)

GA271A Vacuum Pump (page 252)

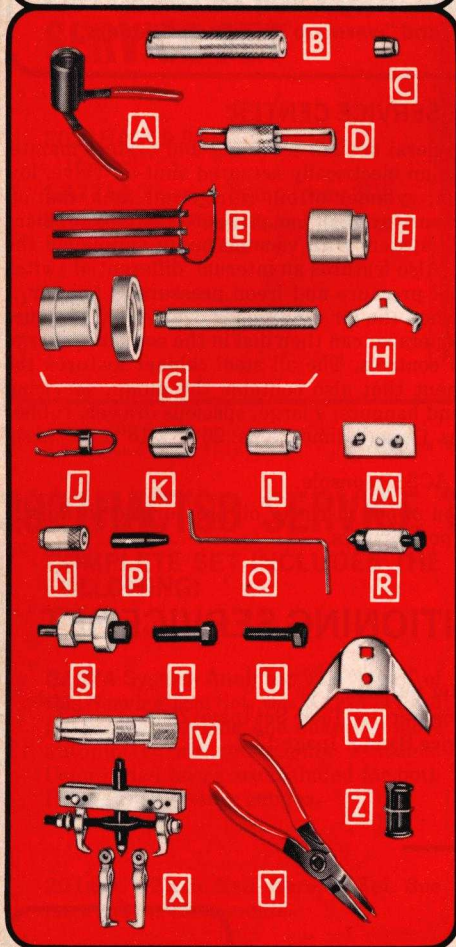
SS444C Air Conditioner Service Banner (page 173)



Air Cond.

2014ACTB Basic Seal Service Set. Includes [A] thru [Z] in KRA279 Metal Box.

2014ACT Set. Above set less box.



BASIC SEAL SERVICE SET

CAUTION: Always wear approved eye protection when working with refrigerant systems.

[A] **ACP1 Snap Ring Pliers.** Removes snap rings recessed in end of compressors on GM air conditioner systems.

[B] **ACT1A Shaft Seal Remover and Installer.** For air compressor seal.

[C] **ACT4 Shaft Seal Pilot Bushing.** Protects seals during installation.

[D] **ACT8A1 Shaft Seal Seat Remover and Installer.** For GM products.

ACT8A2 Sleeve. Use with ACT8A1 above.

[E] **ACT9 Rotor Plate Clearance Gauge Set.** Includes ring holder and three non-magnetic feeler gauge blades: .025", .035", and .045"

[F] **ACT10 Pulley Adaptor.** Protects shaft, etc. when removing pulley assembly on GM air conditioner systems.

[G] **ACT11A Pulley Bearing Remover and Replacer Set.** Removes and replaces pulley bearing. Includes handle and two adaptors.

[H] **ACT12 Clutch Hub Holding Wrench.** Holds clutch hub of compressors when removing, replacing and torquing lock nut on compressor shaft.

[J] **ACT13 Seal Remover.** Removes cartridge and unitized seals.

[K] **ACT14-1 Seal Installer.** Installs cartridge and unitized seals.

[L] **ACT14-2 Seal and Plate Centering Tube.** Use when installing York and Tecumseh compressors.

[M] **ACT15A Compressor Test Plate.** Tests GM compressors only.

[N] **ACT16 Seal Seat Remover.** Removes seal seats on Chrysler products.

[P] **ACT17B Seal Protector.** Protects seals when removing GM compressors.

[Q] **ACT18 Seal Hook.** Removes felt seal sleeve on some GM vehicles.

[R] **ACT19A Rotor Plate Puller.** Removes rotor plate on GM products.

[S] **ACT20 Rotor Plate Installer.** For rotor plates on GM products.

[T] **ACT21 Bolt.** Removes drive pulley and clutch on Ford and Chrysler. Thread size is 5/8"-18. Length is 2 1/2"

[U] **ACT22 Bolt.** Removes drive pulley and clutch from some Chryslers. Thread size is 5/8"-11. Length is 2 1/2"

[V] **ACT23 Seal Seat Remover.** Removes ceramic seal seats on all 1970 and later GM compressors.

[W] **ACT24 Belt Tensioner.** Adjusts tension on GM compressor belts.

[X] **CJ80A Pulley Puller.** Removes drive pulleys. Includes two sets of jaws for a reach of 1 3/8" or 1 5/8" (See page 203.)

[Y] **PR21A Internal Retaining Ring Pliers.** Features .038" straight tip. 5 7/16" long.

[Z] **GA280 O-Ring Installer.** Installs shaft seal O-ring in compressor without removing unit from vehicle.

ACCESSORIES

CAUTION: Never use vacuum pumps as air compressors.

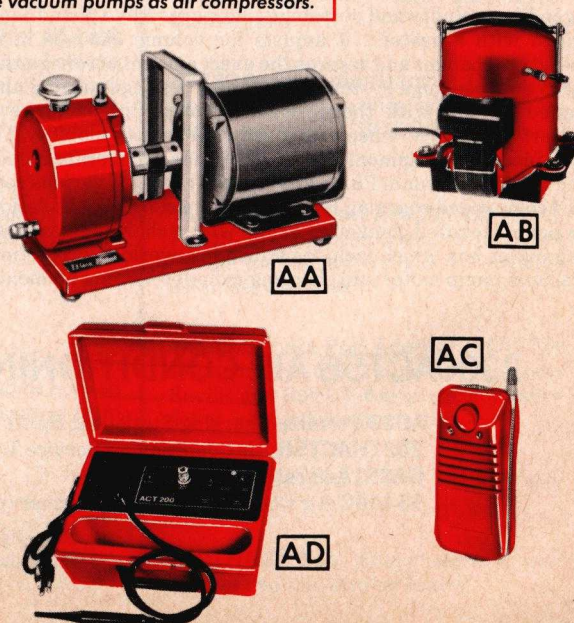
[AA] **GA271A Vacuum Pump.** Removes impurities and moisture from air conditioner system during evacuation. Includes 1/4 H.P., 1725 RPM motor plus pump and drive assembly. Has free air capacity of 1.5 CFM with ultimate vacuum of 29.99 Hg. Pump is oil-lubricated with rotary sliding vane design. 115-volt, 60 Hz power. (230-Volt, 50 Hz model available on special order only.)

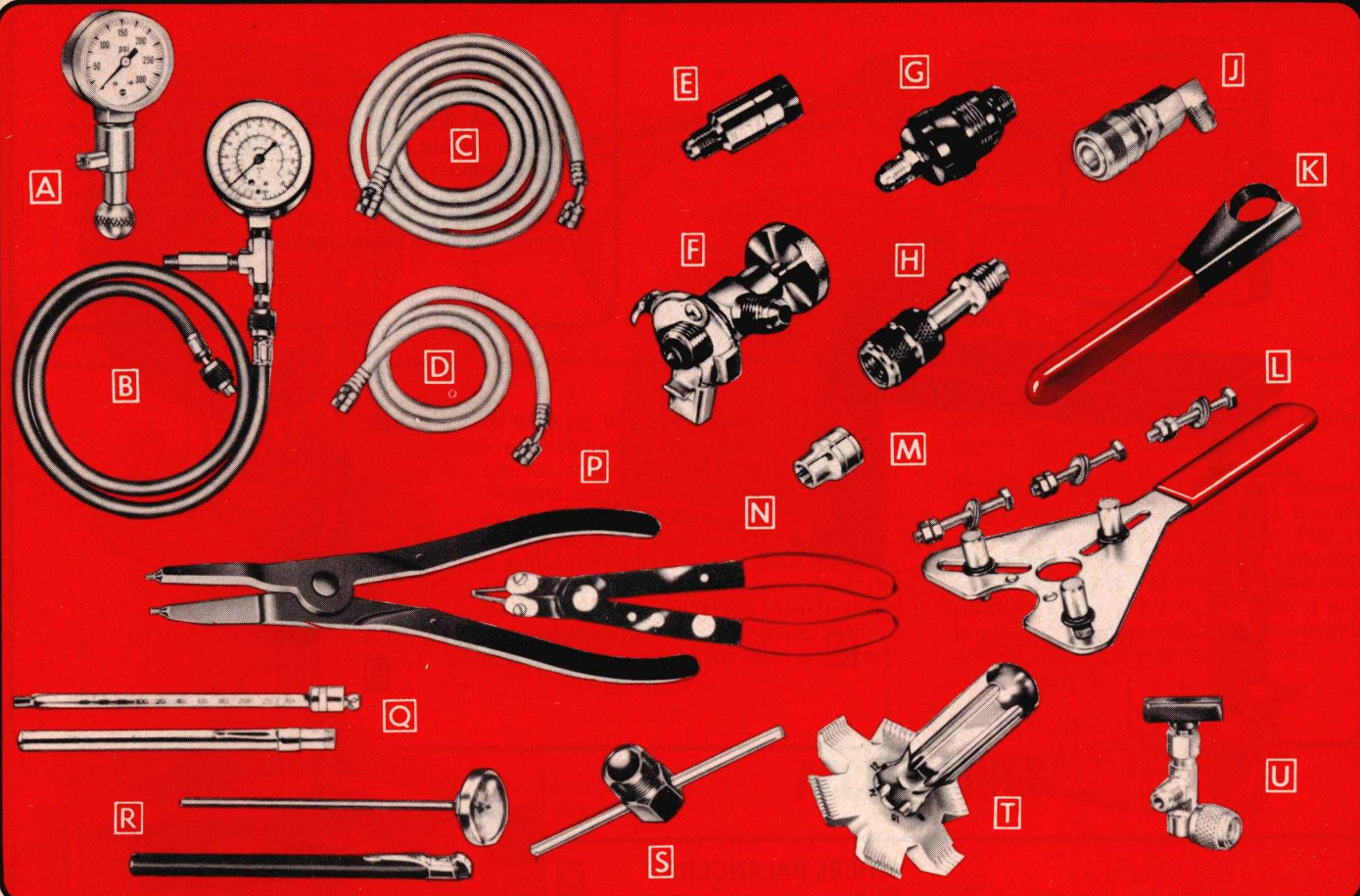
GA271-0 (1 Qt.) & GA271-20 (1 Gal.) Vacuum Pump Oil.

[AB] **YA270 Vacuum Pump.** Motor designed for easy starting and draws little power when running. 1/8 H.P., 1750 RPM motor. Has free air capacity of .650 CFM with ultimate vacuum of 29.82 Hg. 115-Volt, 60 Hz power.

[AC] **ACT100A Electronic Leak Detector.** Rapid clicking noise signals even minute leaks. Siren sounds when source is located. 18" flexible arm. No warm-up time. Runs on 4 "AA" size batteries (included). Measures 6 3/4" x 3 3/8" x 1 3/8". Includes earphone and tip. Also part of 2021HACTSB Set (page 250).

[AD] **ACT200 Electronic Leak Detector.** Can locate leaks as small as 1 ounce per year. Features a vacuum pump, adjustable sensitivity, audible and visual signals, unlimited duty cycle, instant response and a replaceable sensing element. 3' long probe. 120-Volt, 60 Hz power. Measures 10" x 7 1/8" x 3 3/8".





CAUTION: Always wear approved eye protection when working on refrigerant systems.

A ACT113 Pressure Tester. Checks HI and LO pressures while engine is running. Dial range is 15-300 (5 psi increments). Brass fittings. 4" long.

B GA455A LO Pressure Gauge. Easily attaches to GA274 System Analyzer (p. 250) for testing EPR valves on all Chrysler and some GM air conditioners.

C Charging Lines. For hooking up GA274 System Analyzer (p. 250) and ACS3 Portable Charging Station (p. 251) to GA271A and YA270 Vacuum Pumps (p. 252). 8' long. 500 lbs. working pressure.

GA341A Red Charging Line.
GA342A White Charging Line.
GA343A Blue Charging Line.

D Replacement Hoses. Identical to hoses on GA274 System Analyzer (p. 250). 3' long.

GA281 Yellow Replacement Hose.
GA283 Red Replacement Hose.

E GA452 Refrigerant Check Valve. Connects between compressor and dispensing valve. Prevents accidental fill of refrigerant container when connected to high side. 1 1/4" long. Made of brass.

F GA275A Refrigerant Dispensing Valve. Fits all flat top or threaded top cans. Cam-type safety lock.

G ACT104 Cleaning and Flushing Tool. For testing POA valves on 1975 GM cars and suction throttling valve on 1976 Fords. Works in both forward or backward direction. 2 3/4" long.

H GA413 Anti-Blowback Refrigerant Check Valve. For GM, Chrysler, AMC and Ford cars with "Schroeder" valves. Shuts off gauge pressure when disconnecting high pressure gauge. 2 1/4" long. Made of brass.

J ACT110 Quick-Disconnect Fitting. Attaches to high side compressor fitting on 1977-current Fairmont, Granada, Monarch, Versailles and Zephyr autos. Made of brass.

K ACT105 STV Tool. Services STV valve on 1976-current Granada and Monarch, plus 1977-current Pinto, Bobcat and Mustang. Spring features one-way action. Black finish with red vinyl grip. 6 1/2" long.

L GA400A Spanner Wrench. Adjustable 3-stud design services R4 compressors on GM 4-cylinder autos. Three 2" long bolts are included for servicing small cars and imports with Sankyo 5 1/4" and 6" clutch assemblies. Also has applications on some GM, Warner, Pitts and Ogura clutches.

M TLE60 Socket. Services size E6 head fasteners on 1977-current Eaton and York compressors. 1/4" drive, 7/8" long. O.D. drive end 2 1/4", wrench end 7/16"

FLE80 Socket. Similar design as TLE60 at left, except it services size E8 head bolts. 3/8" drive, 29/32" long. O.D. drive end 2 1/32", wrench end 3/8"

N PR2 Snap Ring Pliers (internal or external). Includes one pair each of straight .035", .045" and .060" tips; 45° angle .045" tips; and 90° angle .035" tips. 7 1/2" long. *Tip kits on p. 150.*

P PRA26 Snap Ring Pliers (external). For GM magnetic clutch and pulley. 9 1/2" long.

Q GA134 Thermometer. Range of 20-240°F. (2° increments). Base screws into metal case for protection. 6 1/2" long.

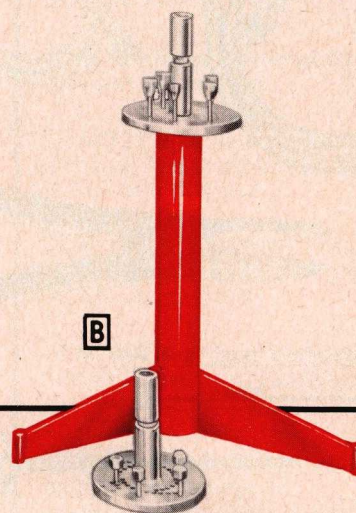
R GA483 Thermometer. Range of 0-220°F. (2° increments). Plastic protective case. 5" long stem. *Stem should be immersed about 2" in liquid, 4" in gases.*

S GA412 Thread Chaser. Cleans and restores threads on GM hub and shoe assemblies.

T ACT101 Fin Straightener and Cleaner. Multi-head unit straightens coil fins with spacings of 8, 9, 10, 12, 14 and 15 fins per inch. 4 1/4" long.

U ACT109 Service Valve. Designed to prevent the sudden and possible hazardous release of refrigerant and oil when disconnecting the high side charging line. Allows you to discharge back into the low side. Doesn't waste refrigerant. Includes 1/2" swivel connection and 1/4" male flare.

No guesswork...no trial and error...the *Snap-on* Computer Wheel Balancer is the fast and accurate way to balance automotive and light truck wheels. This advanced technique eliminates unequal tire wear and vibration for a smooth, quiet ride; longer tire life and a satisfied customer. And that satisfied customer can mean repeat profits for you.



CAUTION: Wear approved eye protection.

FEATURES

- **Fast Balancing Time...** averages only 10 seconds depending on tire and wheel weight.
- **Automatic Stop...** when cycle is completed.
- **Large Easy-to-Read Meters...** provide weight readings to nearest 1/4-ounce.
- **Solid State Circuitry...** assures mistake-proof measurements.
- **No Guesswork...** only one cycle and the imbalance is determined; the location and weight required is memorized — precisely.
- **Five Reverse Mounting Cones...** for all wheels with concentric center holes.
- **Bolt Hole Adaptor Set...** available for wheels with non-concentric center holes.
- **Large Protective Wheel Guard...** features a safety interlock switch.
- **Weight Tray...** 16-bin tray holds all your weights.

WHEEL BALANCERS

A Computer Wheel Balancers. Electronic sensors automatically determine the amount of imbalance to the nearest 1/4-ounce...plus the precise location where the weights should go. There's no need to interpret a reading; it's right every time. Proper weight can then be applied to both the inside and outside of the wheel which adds to tire life. A custom wheel selector for decorative and mag-type wheels permits "inside only" balancing so weights aren't visible.

WB130 Computer Wheel Balancer: 230 Volt, single phase, 60 Hz.

WB308 Computer Wheel Balancer: 208 Volt, three phase, 60 Hz.

WB330 Computer Wheel Balancer: 230 Volt, three phase, 60 Hz.

ADAPTOR SET

B WB300 Special Wheel Adaptor Set. Comes complete with adaptor plates for 4, 5, 6 and 8 hole U.S. and import car special wheels. Includes two sets of speed bolts (5 in each set) and a mounting stand. Use when wheel center is non-concentric or inaccessible for cone mounting.

COMPUTER BALANCER SETS

WB3130 includes **WB130 Balancer** and **WB300 Adaptor Set**.
WB3308 includes **WB308 Balancer** and **WB300 Adaptor Set**.
WB3330 includes **WB330 Balancer** and **WB300 Adaptor Set**.

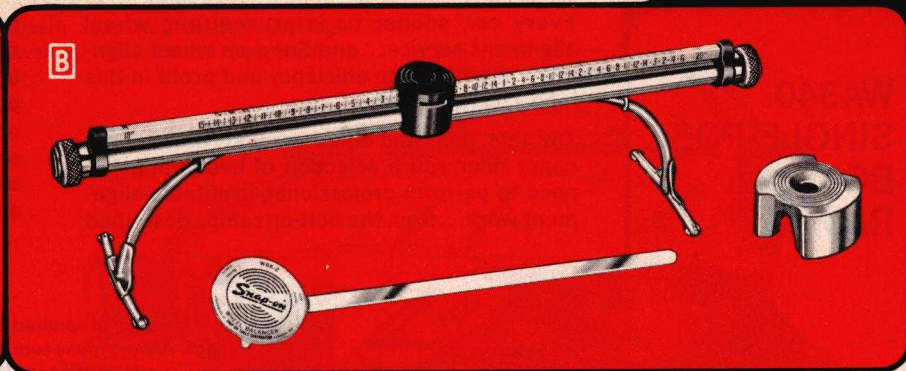
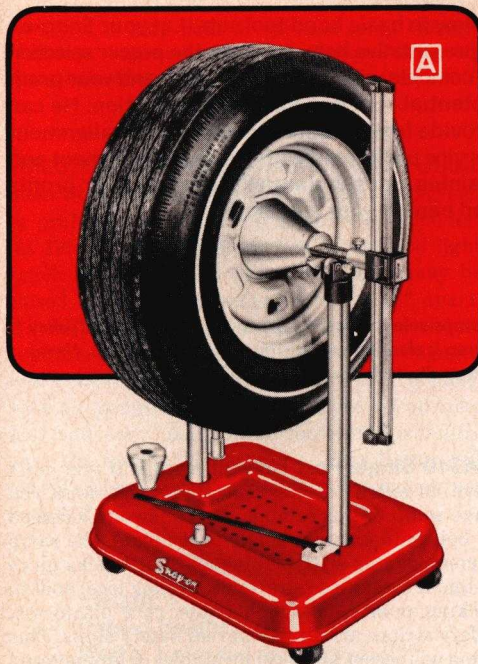
SPECIFICATIONS

Maximum Wheel Assembly: 105 lbs.
Wheel Sizes: 10" to 16 1/2"
Tire Width: to 14"
Cycle Time: Averages 10 seconds

Balancing Speed: 597 RPM
Floor Space Requirements: 54" x 84"
Approximate Shipping Weight: 825 lbs.

WHEEL BALANCERS

Balancing



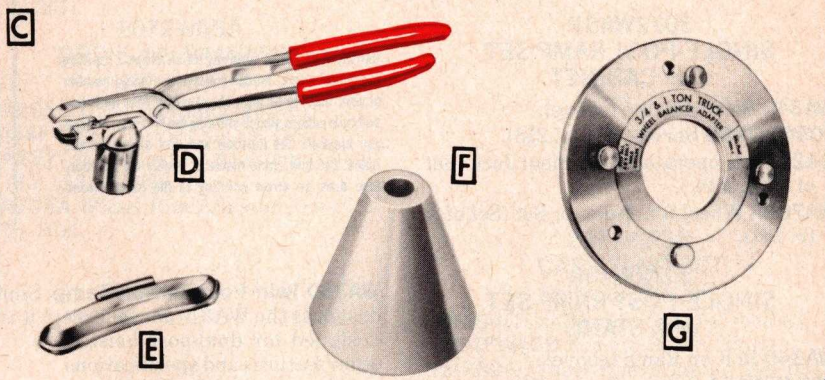
[A] WBK2C Wheel Balancer. Provides an even distribution over the entire circumference of the tire for a perfect balance. Weights are placed at 2 points which are exactly equidistant from each other and the third point which is actually the heavy spot. A calibrated Sliding Weight Beam indicates precisely how much weight is required; the Switch Arm tells you where. Also includes 4 plated cones for balancing wheels without drums, sliding weight for accuracy, heavy

steel base, wheel weight pliers and 4 rubber swivel casters for mobility.

[B] WB59B Truck Wheel Balancer. Balances entire rotating assembly of wheel, tire and brake drum on trucks or buses. Fits all rims from 13" to 22" diameter. Predetermines amount and location of imbalance. Hardened discs bite into rim to hold unit in position. Sliding weight shows weights needed... swing arm shows location.



ACCESSORIES



WHEEL WEIGHT ACCESSORIES

[C] KRD401 Wheel Weight Cabinet. 16 compartments hold 50 weights in 1/4-ounce thru 6-ounce size. Vinyl "size" stickers included for each size. Slots facilitate hanging or resting cabinet on the floor or bench. Measures 30 1/2" high, 24 7/8" long and 5 3/8" wide.

[D] WWP12P Wheel Weight Pliers. Riveted joint construction with cutters in front of the joint for more cutting power. Plastic hammer tip is 1 1/2" long. Pliers tips are designed for secure grip of the weights. The hook tip and hammer tip are both replaceable. Red vinyl covered grips. 11 13/16" long.

WWP12-3 Replaceable Hammer Tip.
WWP12-4 Replaceable Hook Tip.

[E] WHEEL WEIGHTS

Snap-on makes available both standard and thick wheel weights in 1/4-ounce thru 6-ounce sizes. Ask your Snap-on representative for the weights available in your area.

WBK2C ACCESSORIES

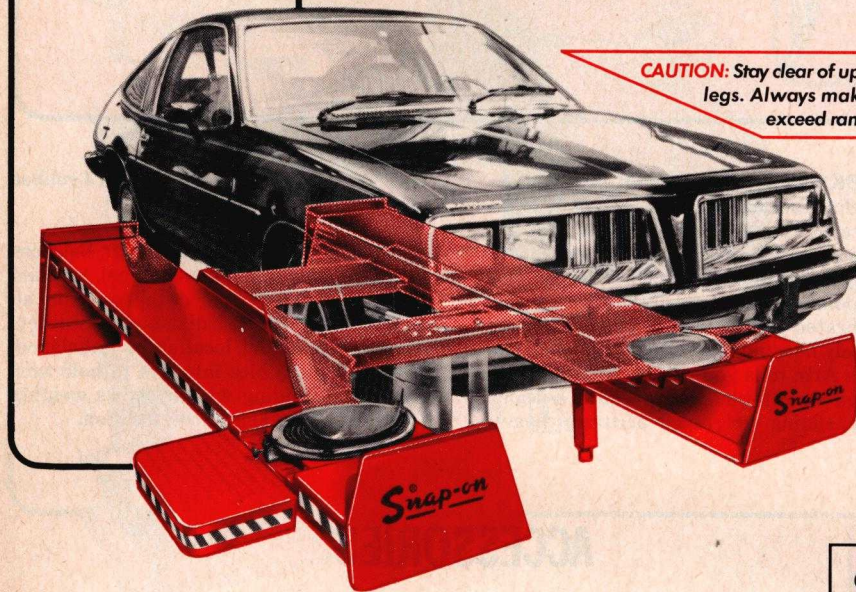
[F] WBK2B203L Large Cone. Required for use with WBK2C Wheel Balancer when balancing wheels of Ford and Dodge trucks. The large openings on the truck wheels require the use of a larger cone to hold the wheels perfectly centered around the balancer spindle.

[G] WBK4 Wheel Adaptor. Adapts WBK2C Wheel Balancer to 3/4-ton and 1-ton trucks. Features two patterns—one for 6-hole, 7 1/4" diameter bolt hole circle wheels, the other for 8-hole, 6 1/2" diameter bolt hole circle wheels. Four tapered-head lug bolts are provided for securing the wheel to the adaptor. O.D. is 9 1/2"; I.D. is 3 1/2". The adaptor is 1 1/16" thick.

WBK2C Vinyl Cover (not shown). Protects your WBK2C Wheel Balancer from grease and dust when not in use.

Alignment

WA340 SINGLE-POST BOLT-ON RAMP



CAUTION: Stay clear of upraised ramps unless properly supported by leveling and safety legs. Always make sure area is clear before raising or lowering ramp. Never exceed ramp load capacity. Hoist must have 8500 lb. minimum capacity.

WA340 Single-Post Bolt-on Ramp. If you don't have an extra bay for that alignment ramp you have wanted, this ramp is your answer. Designed to bolt onto existing single-post hoists, the ramp accommodates all cars, plus all light trucks up to 3/4-ton. It includes 4 retractable leveling legs, built-in jacking points, detachable foot rest platforms, safety stripes and front and rear safety stops. This ramp will accept **Snap-on** turntables or air-operated alignment jacks (not included). It complies with ANSI Spec. B153.1-1974.

3072WASB SINGLE-POST RAMP SET with CABINET

WA340 Bolt-on Ramp (above).
2054FWASB Service Set (p. 258).
GA257 Air-operated Alignment Jack (Set of 2) (p. 259).
WA702A Wheel Rim Adaptor Set (Set of 2) (p. 261).

3072WASA SINGLE-POST RAMP SET with STAND

WA340 Bolt-on Ramp (above).
2054FWASA Service Set (p. 258).
GA257 Air-operated Alignment Jack (Set of 2) (p. 259).
WA702A Wheel Rim Adaptor Set (Set of 2) (p. 261).

4072WASB TWIN-POST RAMP SET with CABINET

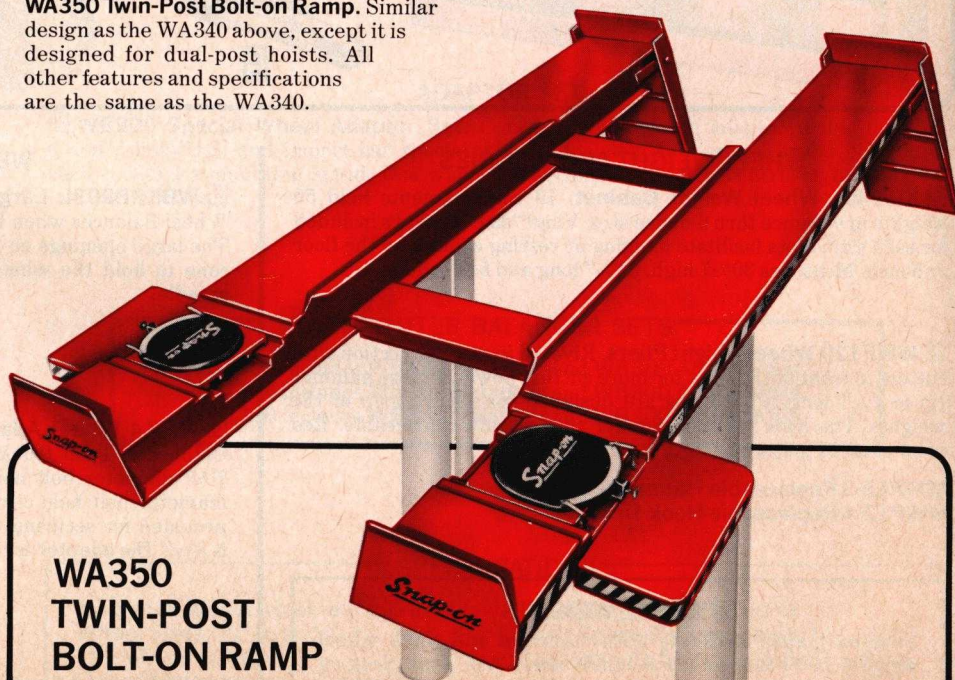
WA350 Bolt-on Ramp (at right).
2054FWASB Service Set (p. 258).
GA257 Air-operated Alignment Jack (Set of 2) (p. 259).
WA702A Wheel Rim Adaptor Set (Set of 2) (p. 261).

4072WASA TWIN-POST RAMP SET with STAND

WA350 Bolt-on Ramp (at right).
2054FWASA Service Set (p. 258).
GA257 Air-operated Alignment Jack (Set of 2) (p. 261).
WA702A Wheel Rim Adaptor Set (Set of 2) (p. 261).

IMPORTANT: When ordering these ramps...specify the brand name, model number and serial number of your hoist to be sure of proper fit. Also include a bolt hole pattern sketch showing the bolt size, number and location; the location and size of any access holes; the bolt circle diameter; safety leg position. Also draw an arrow pointing to the hoist's front.

WA350 Twin-Post Bolt-on Ramp. Similar design as the WA340 above, except it is designed for dual-post hoists. All other features and specifications are the same as the WA340.



WA350 TWIN-POST BOLT-ON RAMP

SPECIFICATIONS

Capacity	6,000 lbs.
Overall Length (Ground Level)	220"
Runway Length	171"
Runway Width	19 1/2"
Minimum Track Width	39"
Maximum Track Width	78"
Minimum Inside Clearance	34"
Maximum Wheelbase	128"
Floor to Runway Height	27 1/2"
Ramp Weight	2,200 lbs.

DRIVE-ON RAMP & CAR STANDS

Alignment

CAUTION: Stay clear of upraised ramp unless properly supported by its safety legs. Always make sure area is clear before raising or lowering. Never exceed ramp load capacity. Always use rear wheel stops.

WA201C Drive-on Ramp provides faster adjustment time, easier access, lower fatigue and greater profit potential. With a capacity of 6,000 lbs. (at 125 psi) the ramp handles all car and light truck business. The wide 14" tracks may be closed to within 40" or extended to 68" apart. Air-adjustable leveling permits ramp to lock into position. A "safety leg" automatically engages when the rear tracks are raised. A control panel with air gauge and regulator make set-up time fast and easy. Adjustable footstands simplify over-the-fender adjustments. This Ramp will accept either Deluxe or Standard Turntables (not included).

SPECIFICATIONS

Length: 17' 2 $\frac{1}{4}$ "
Raised Height: 17"
Width: Extended 68"; Closed, 40"
Runway Width: 14"
Capacity: 6,000 lbs.
Air Pressure Needed: 75-125 psi

WA204C Set of Four Car Stands. Includes one each left and right front stand plus two rear stands. Adjustable feet permit leveling on uneven floors. Front stands are equipped with platforms on which to stand while making over-the-fender adjustments. "V" shaped tops on rear stands help prevent car from rolling. *Turntables not included.*

WA130CR. One right front stand only.

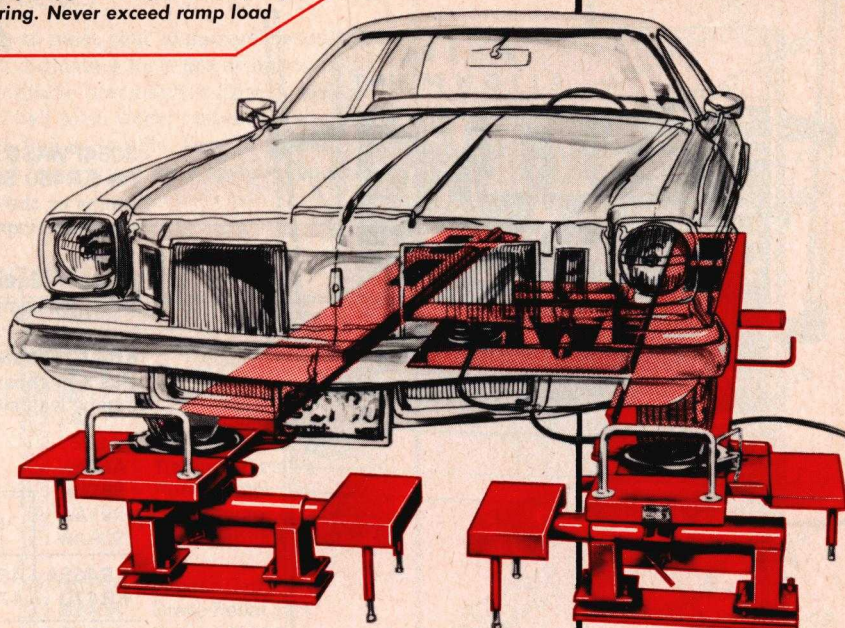
WA130CL. One left front stand only.

WA131C. One rear stand only. (Two required.)

SPECIFICATIONS

Front Stands: 35 $\frac{3}{4}$ " x 12 $\frac{1}{2}$ "; platform, 14" x 15 $\frac{1}{4}$ "; height, 9 $\frac{1}{2}$ " to 12"

Rear Stands: 20" x 12 $\frac{1}{2}$ "; height, 13 $\frac{1}{2}$ " to 16 $\frac{1}{4}$ "



2072WASB DRIVE-ON RAMP SET with CABINET

WA201C Drive-on Ramp (above).
2054FWASB Service Set (p. 258).
GA257 Air-operated Alignment Jack (Set of 2) (p. 259).
WA702A Wheel Rim Adaptor (Set of 2) (p. 261).

2072WASA DRIVE-ON RAMP SET with STAND

WA201C Drive-on Ramp (above).
2054FWASA Service Set (p. 258).
GA257 Air-operated Alignment Jack (Set of 2) (p. 259).
WA702A Wheel Rim Adaptor (Set of 2) (p. 261).

WA201C DRIVE-ON RAMP

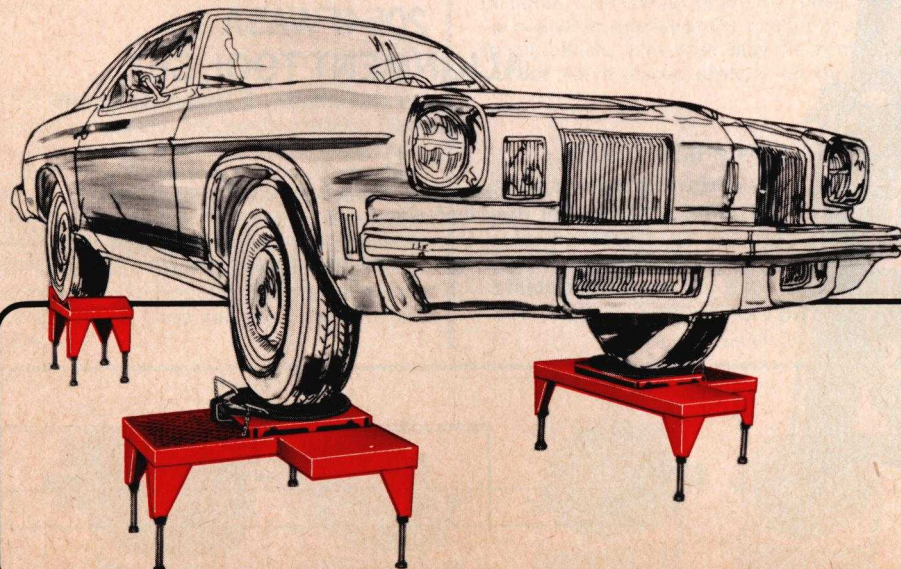
2071WASB CAR STAND SET with CABINET

WA204C Car Stands (Set of 4) (below).
2054FWASB Service Set (p. 258).
WA702A Wheel Rim Adaptor (Set of 2) (p. 261).

2071WASA CAR STAND SET with STAND

WA204C Car Stands (Set of 4) (below).
2054FWASA Service Set (p. 258).
WA702A Wheel Rim Adaptor (Set of 2) (p. 261).

CAUTION: Center all four tires on Car Stands before lowering.



WA204C PORTABLE CAR STANDS

2054FWASB ALIGNMENT TOOL SET

2054FWASB Set consists of all the tools listed in the box below plus the **KR480 Storage Combination**. When used with either of the ramps or the car stands on pages 256 and 257 you have complete alignment capability. The **KR480** includes:

KR465A Equipment Cab. Features one tumbler lock, two drawers, a divided compartment and four heavy duty swivel casters.

KR470 Display Cabinet. Open cabinet includes an illuminated sign plus a pegboard with assorted clips and hooks for mounting tools. Can be wall mounted.

	Overall Length	Overall Width	Overall Height (w/Legs)	Drawer Length	Drawer Width	Drawer Depth
KR465A	48"	20 ⁷ / ₈ "	37 ¹ / ₂ "	21 ²⁷ / ₃₂ "	19 ⁷ / ₈ "	3 ¹⁵ / ₁₆ "
KR470	47 ¹³ / ₁₆ "	8"	38"	—	—	—

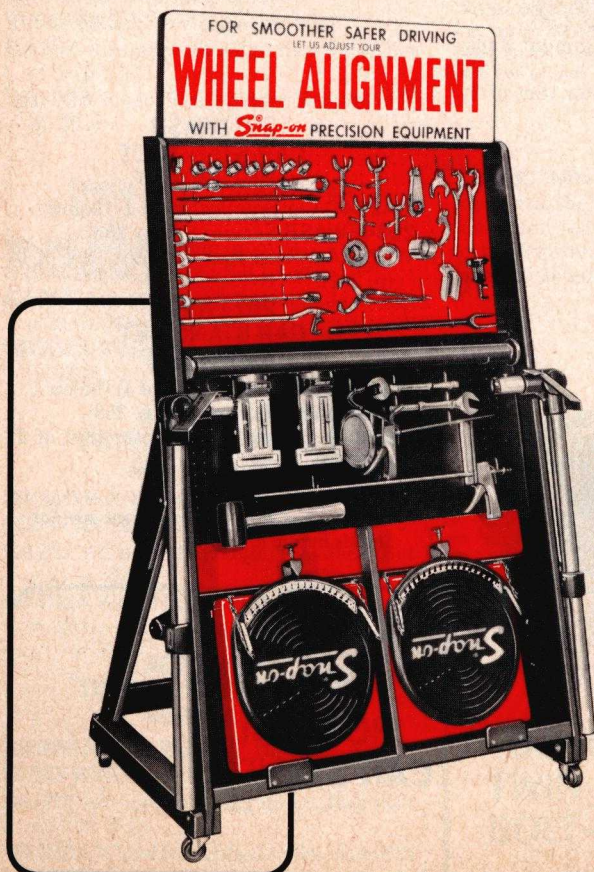
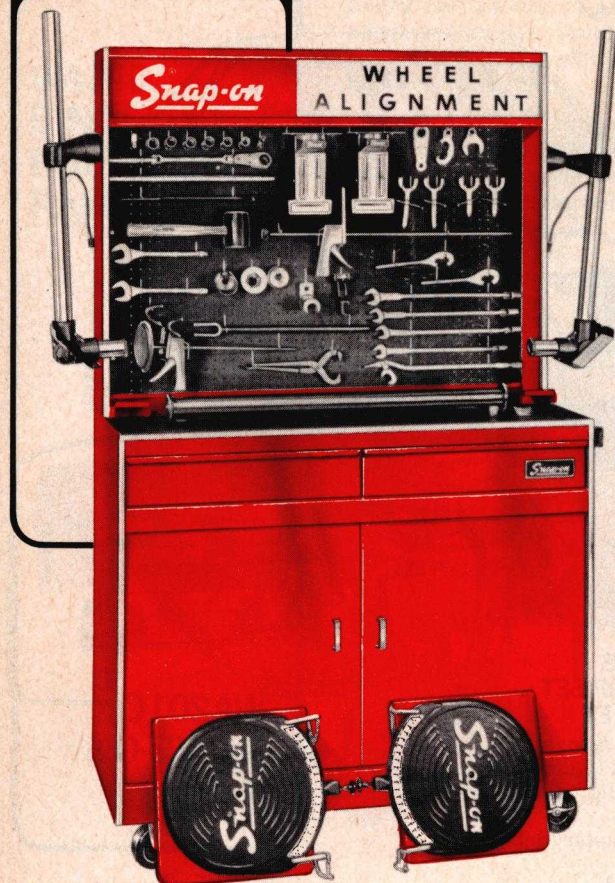
Alignment Tools in 2054FWASB and 2054FWASA Sets

- 2023HWA Hand Tool Set (p. 259)
- WA110A Optical Toe Gauge (p. 260)
- WA64B Turntables (Set of 2) (p. 259)
- WA96A Steering Wheel Holder (p. 260)
- WA402A Caster-Camber Gauge (Set of 2) (p. 261)
- SS312A Telescoping Curb Sign (page 173)

2054FWASA ALIGNMENT TOOL SET

2054FWASA Set allows the same alignment versatility as its "sister" set described above...it includes all the same tools (see the set contents in the box above) plainly displayed on the **WAB101C Merchandising Display Stand** for instant access. Four swivel casters provide mobility.

	Overall Length	Overall Width (at Base)	Overall Height (w/Casters)
WAB101C	41"	20"	77 ³ / ₄ "



TOOL SET/ACCESSORIES

Alignment

2023HWA HAND TOOL SET

This set consists of specially designed hand tools to meet your alignment needs. No alignment operation is complete without this set. Adjusting tools are designed to do the job quickly and efficiently...all leading to profitable productivity. Special sockets and wrenches simplify tie rod end replacement, ball joint work, caster and camber adjustments and other related applications. Each tool is durable, easy to use and to clean and has the *Snap-on* professional look. Each is designed for a specific function to make your alignment easier and more profitable.

2023HWA SET CONTENTS

Stock No.	Description	Stock No.	Description
A OH22	11/16" Combination FLEXHEAD Wrench	K S8702	Caster-Camber Tool Set
A OH24	3/4" Combination FLEXHEAD Wrench	L WA35	Caster-Camber Tool Set
A OH26	13/16" Combination FLEXHEAD Wrench	M WA171D	Caster-Camber Wrench
A OH28	7/8" Combination FLEXHEAD Wrench	N 18A	18" Tubular Handle
B OE136A	1 1/8" Open End Wrench	P 1658A	16" Pinch Bar
B OE132A	1" Open End Wrench	Q WA14A	Tie Rod Adjusting Tool
C WA10A	Tie Rod Adjusting Tool	R WA782	Hub Adaptor (Set of 2)
C WA11A	Tie Rod Adjusting Tool	S WA792	Hub Adaptor (Set of 2)
D SCO44	1 3/8" Crowfoot Wrench	T WA802	Hub Adaptor (Set of 2)
E WA16	Tie Rod Tool	U WA812	Hub Adaptor (Set of 2)
F A200	Tie Rod Separator	V GCP10	Grease Cap Tool
G WA309FL	Caster-Camber Wrench Set	W B240A	Brake Pedal Jack
H WAM302FL	18 mm Caster-Camber Wrench Set	X BF620A	Rubber Mallet
J WA24A	3/4" Caster-Camber Wrench	Y YA130	Caster Adjusting Wrench
K S8699B	Caster-Camber Tool Set	Z GA469	Caster-Camber Tool

ACCESSORIES

[AA] WA64B Deluxe Heavy Duty Turntable Set. Consists of a right and left hand turntable. Handles all vehicles with front ends weighing up to 8,000 lbs. Plates lock automatically at 20° to eliminate holding the steering wheel while reading the gauges. 14" diameter top plates assure smooth turning. Pointer sets close to gauge. Cast iron base and plate. Will fit *Snap-on* ramps (pp. 256 and 257) and car stand set (p. 257).

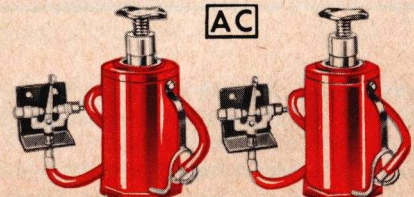
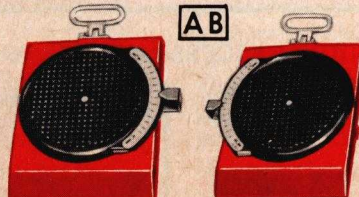
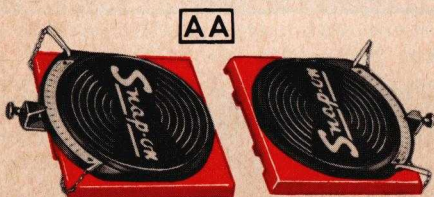
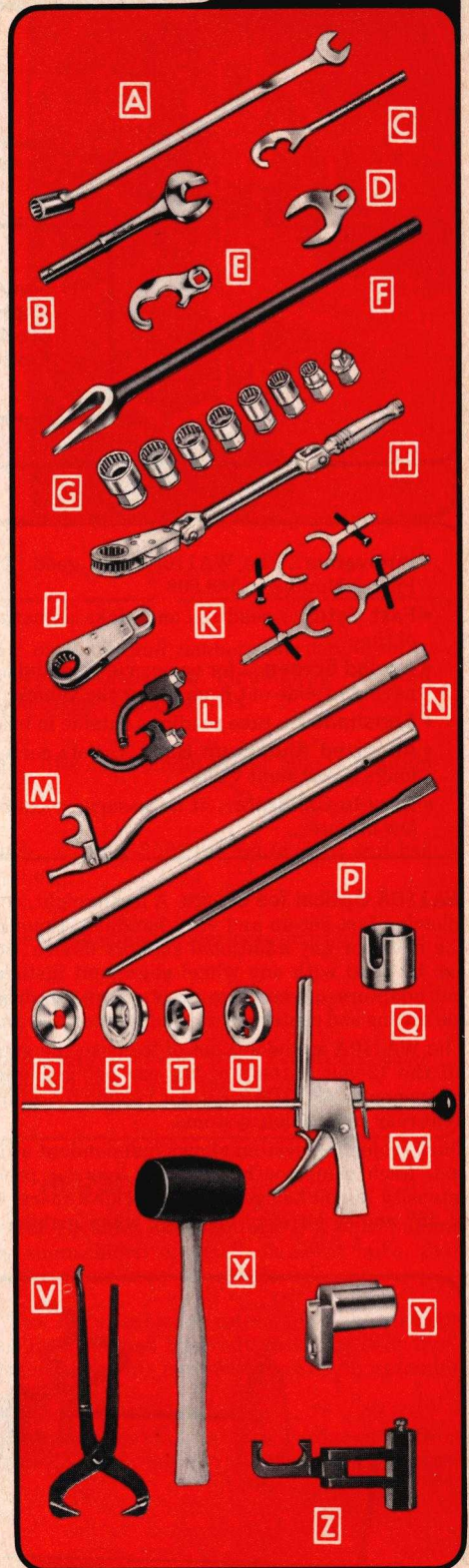
[AB] WA62D Standard Turntable Set. Includes a right and left hand turntable. Built to handle cars and light trucks with front ends weighing up to 5,000 lbs. Turntables feature ball bearing free floating waffle top plates which are 11" in diameter. Beveled edge of plate helps overcome any tendency to slide away from the wheel if a car is driven onto the turntable. Pointer sets close to the gauge. Base and top plate are cast iron.

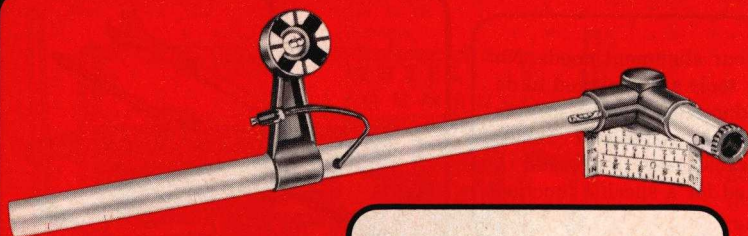
[AC] GA257 Pair of Air-Operated Alignment Jacks. Recommended for use with any of the ramps on pages 256 and 257. The jacks quickly raise a car or truck without effort to release binding pressures on the front wheels before shims or cams can be installed or removed, parts repaired or adjustments made. Honed cylinder and double cup oil reservoir ensures years of dependable service. With each operation, a thin film of oil from the reservoir lines the cylinder wall to prevent rusting.

Included with the jacks are a 4' hose, tank valve and air release at the end for use with an air chuck. The hose may be removed and air valve placed directly on the jack.

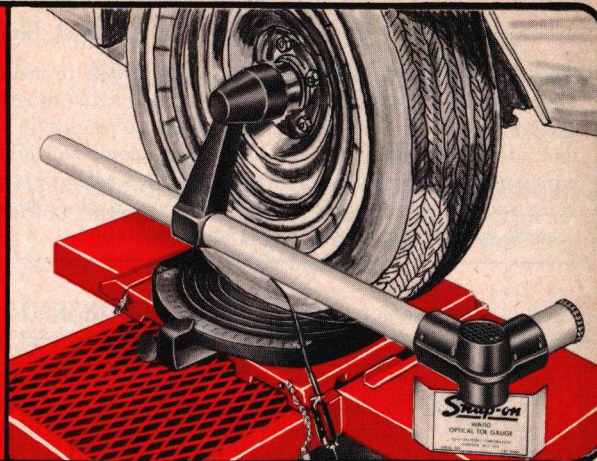
JACK SPECIFICATIONS

Jack Stroke: 5 1/2"
Height Down: 10"
Height Up: 16"-19 1/4"
Lift Capacity @ 100 psi:
2,400 lbs.
Lift Capacity @ 125 psi:
3,000 lbs.





New design...saves time, improves accuracy, builds profits...it's the WA110A Optical Toe Gauge.



FEATURES

- **Innovative**...the WA110A is so good, it's patented — under Patent Number 4,168,909.
- **Fast Setup**...read toe and make adjustments in a minimum of time.
- **Angled Screen**...for easier viewing and adjustments without having to slide out from under the vehicle.
- **Sunshades**...take readings outside in bright sunlight.
- **Anodized Aluminum Bar**...resists corrosive elements, prolongs investment value.
- **Easy-to-Calibrate**...if necessary, re-calibration takes only a few minutes.
- **Rear Toe Kit**...adjust toe on independent rear suspension systems such as found on current Eldorado, Toronado and Riviera.
- **Power Hook-up**...operates off a 12-volt battery — or a wall outlet with the optional WA98 Power Pack.
- **Powerful Magnet**...provides a non-slip hold with a 95-pound pull Alnico magnet.
- **Dual Projection**...allows toe to be set independently at each wheel.
- **Camber Adjustment**...a 13" projected light image covers -3° to $+6^{\circ}$ camber range — the camber adjustment expands this to all vehicle camber settings.

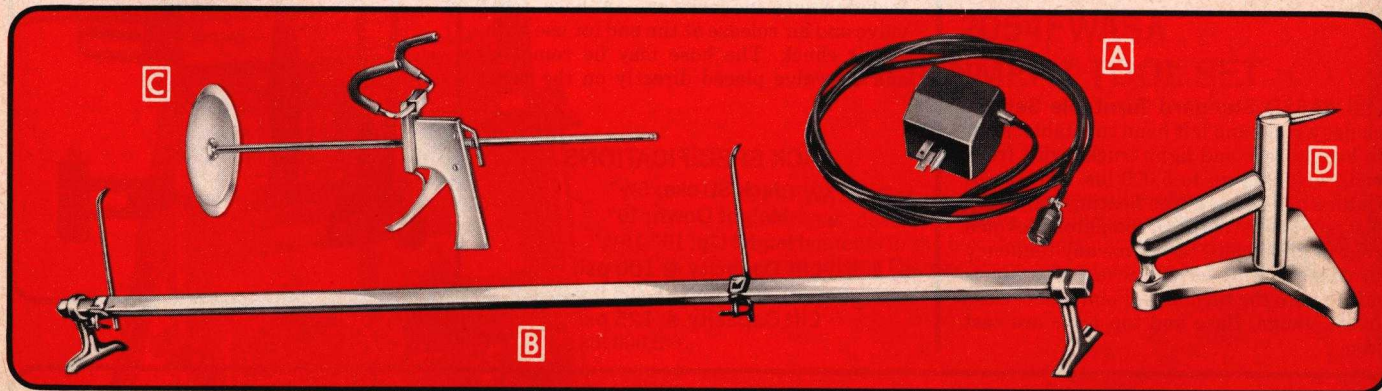
WA110A Optical Toe Gauge. A lightweight, counter-balanced unit allowing fast set-up and easy handling. Counterweights eliminate the need for any additional support device. Services all cars and can be used with any wheel alignment installation...even where hub adaptors or wheel rim adaptors are required. On most vehicles, toe setting and center-steering adjustments are made simultaneously. The WA110A includes a set of leads so the gauge can be operated off the 12-volt battery of the car being aligned. It also includes components (**WA110AK Kit**) for making toe adjustments on independent rear suspension systems.

Dual projection system allows independent adjustment of each tie rod. Each projector has a zoom lens for precise focusing. High intensity 12-volt halogen bulbs provide a sharp, bright image. Scales at 45° angles for easy visibility when making adjustments under

the car. Sunshades are included (**WA110A30**) so the WA110A can even be used outside. Each scale is calibrated in inches, millimetres and degrees. Fingertip adjustment knob permits leveling the image for large camber angles. The WA110A can be checked and re-calibrated periodically with calibration bar provided.

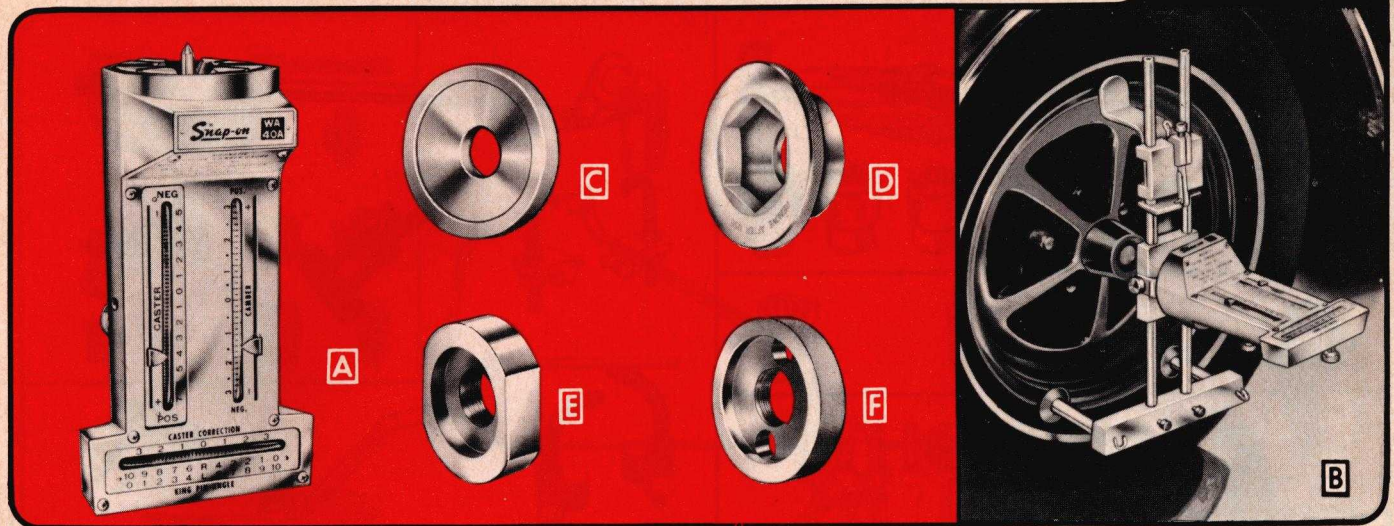
NEEDED ACCESSORIES for WA110A

- WA782 Hub Adaptor Set.** (See page 261.)
- WA792 Hub Adaptor Set.** (See page 261.)
- WA802 Hub Adaptor Set.** (See page 261.)
- WA812 Hub Adaptor Set.** (See page 261.)
- WA702A Universal Wheel Rim Adaptor Set.** (See page 261.)



OPTIONAL ACCESSORIES FOR WA110A

- A WA98 Power Pack (2 required).** Use in any 110-volt outlet. Excellent for vehicles that operate on other than 12-volts...it gives the WA110A even more versatility.
- B WA151A Toe-in Trammel Bar.** $1\frac{3}{8}$ " square extruded aluminum bar on adjustable cast aluminum legs. Adjustable pointers. Gauge reads both ways from center of scale. 7' long.
- C WA96A Steering Wheel Holder.** Rubber sleeves securely grip steering wheel. $18\frac{11}{16}$ " long. Nickel plated finish.
- D WA155 Tire Scriber.** Cast iron base holds scriber in place while scribing fine line around circumference of tire prior to setting toe. Spring-loaded needle point for rough or uneven tires. Chrome finish.



CASTER-CAMBER GAUGE FEATURES

- **Precision Ground Vials**...permit smooth bubble travel for extreme accuracy. Vials are curved so that bubble sets quickly as well as recessed and cushioned to help prevent breakage. Long vials allow expanded range markings with smaller degree fraction increments. Etched markings can't rub off.
- **King Pin Vial**...also used for caster correction. Knurled screw provides for leveling adjustments. There's no need to turn the gauge on the hub to level it. The vial has caster correction marking 1-2-3 degrees both sides of zero. King pin angle markings cover 10 degrees in $\frac{1}{4}$ degree increments.
- **Caster Vial**...adjustment is made by a knurled knob. Readings from -5 to $+7$ degrees are marked off in $\frac{1}{4}$ degree increments.
- **Camber Vial**...provides readings from -3 to $+3$ in $\frac{1}{8}$ of a degree increments.

- **Memory Pointers**...on caster and camber vials can be set to the specifications of a particular car, eliminating repeated references to manufacturers' specifications.
- **Centering Plunger**...fits into spindle center hole to position gauge.
- **Aluminum Housing**...sturdily built yet lightweight unit has brushed aluminum finish.
- **Alnico Magnets**...permanent and powerful to grip hub flange.
- **Directions for use**...attached to bottom of the gauge.

NOTE: Lock the brake with the B240A Brake Pedal Jack (page 263) when checking caster and king pin angle.

CASTER-CAMBER GAUGE

A WA40A Magnetic Caster-Camber Angle Gauge. This Snap-on Magnetic Caster-Camber Gauge makes alignment work easier and more accurate. It permits the mechanic to read caster angle and king pin angle simultaneously.

WA402A Magnetic Gauge Set. Includes two WA40A Gauges.

WA40ARAC Caster Camber Gauge (Special Order Only). Designed for use on cars with high degree camber settings. The Gauge features a plus or minus 8 degree camber vial. The king pin vial reads to ten degrees marked off in $\frac{1}{4}$ degree increments and is also used for caster correction. The camber scale is marked off in $\frac{1}{2}$ degree increments, the caster scale measures from -5 to $+7$ and is divided into $\frac{1}{4}$ degree increments.

B WA70A Universal Wheel Rim Adaptors. Extend the use of the Snap-on Magnetic Caster-Camber Gauge to a wide range of wheels with inaccessible hubs, such as aluminum or magnesium wheels or steel wheels with small centers. The Oldsmobile Toronado and Cadillac front drive wheels can be serviced with these adaptors as well as foreign and sport cars wire wheels with enclosed caps and all four wheel drive trucks. The unit adjusts to any size wheels. Legs have tapered end washers that grip behind the rim and a locking device secures it to the wheel. Three optional chain hooks (WA70-500)

HUB ADAPTORS

C WA782 Adaptor Set. Includes two adaptors. Use on aluminum or magnesium hubs, unmachined or small diameter hubs. $\frac{25}{8}$ " diameter, $\frac{1}{2}$ " thick. Center hole fits over spindle.

D WA792 Adaptor Set. Includes two adaptors. Make wheel alignment adjustments on Toronado and Eldorado cars thru 1978. $\frac{27}{8}$ " diameter, 1" thick. Internal hex fits over wheel assembly retaining nut.

E WA802 Adaptor Set. Includes two adaptors. Designed for front wheel hub on GM's 1980 "X" body cars. $\frac{23}{16}$ " diameter, $\frac{17}{8}$ " across flats, $\frac{21}{32}$ " thick.

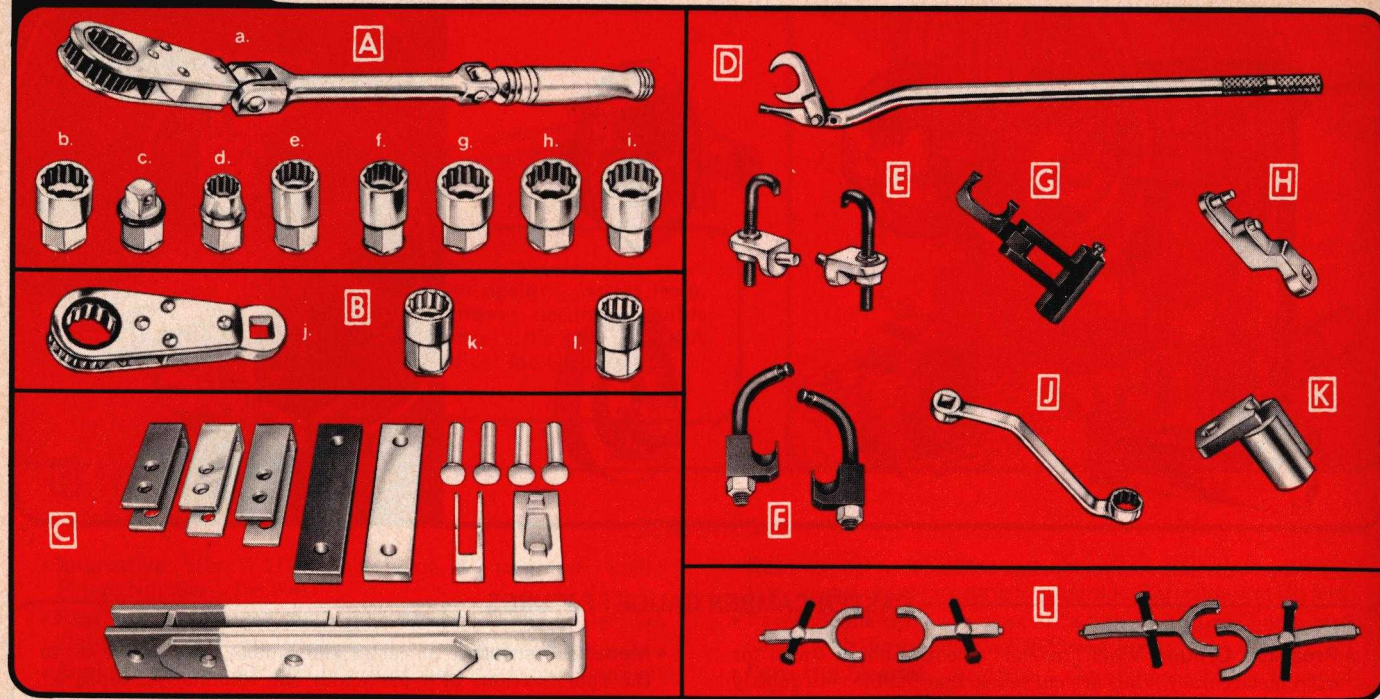
F WA812 Adaptor Set. Includes two adaptors. Designed for front wheel hub on GM's 1979 "E" body cars. M24-1.5 mm center hole thread. $\frac{23}{4}$ " diameter, $\frac{9}{16}$ " thick.

UNIVERSAL RIM ADAPTOR

are available for use where the rim shape will not grip the tapered washers. Instead the hooks grip around the tire.

The WA70A Universal Rim Adaptors can be used with the WA110A Optical Toe Gauge if the wheel spindle does not extend far enough to attach the WA110A. To use, line up the block with the holes in the shafts. Mount and use as you would a caster-camber gauge.

WA702A Adaptor Set. Includes two WA70A Adaptors.



RATCHETING "BOXOCKET" SETS

A WA309FL Caster-Camber Set. For wheel alignment adjustments on GM and Chrysler products. All items in this set feature a chrome finish.

a. **WA28AFL Flexhead Ratcheting "BOXOCKET."** Two flexible joints provide access to tight areas. $\frac{7}{8}$ " double hex "BOXOCKET" is reversible. $18\frac{1}{32}$ " long.

b. **WA28-22M Socket.** For removing upper nut on MacPherson strut assembly on 1974-current Dasher and 1975-current Scirocco and Rabbit. $\frac{7}{8}$ " hex, 22 mm double hex wrench size.

c. **WA28-8 Hex Adaptor.** Converts ratcheting "BOXOCKET" above into $\frac{1}{2}$ " drive ratchet. $\frac{7}{8}$ " male hex.

$\frac{7}{8}$ " Hex, 12-Point Sockets

d. **WA28-20** $\frac{5}{8}$ " g. **WA28-26** $\frac{13}{16}$ "
e. **WA28-22L** $\frac{11}{16}$ " h. **WA28-28** $\frac{7}{8}$ "
f. **WA28-24L** $\frac{3}{4}$ " i. **WA28-30** $\frac{15}{16}$ "

CAUTION: For longer tool life and best performance, always keep wrench opening free of dirt and grease. Also periodically clean and lubricate ratchet mechanism to help ensure safe operation.

WA28-18M Optional Socket (not shown). Use with WA28AFL at left to make wheel alignment adjustments on late model GM autos. $\frac{7}{8}$ " male hex, 18 mm double hex wrench size.

B WA309 Caster-Camber Set. Same applications as WA309FL at left.

j. **WA28A Torque Adaptor Wrench.** $\frac{1}{2}$ " drive handle opening, $\frac{7}{8}$ " double hex reverse-ratcheting "BOXOCKET". $5\frac{1}{32}$ " long.

b. **WA28-22M Socket.** (At left.)

c. **WA28-8 Hex Adaptor.** (At left.)

$\frac{7}{8}$ " Hex, 12-Point Sockets

d. **WA28-20** $\frac{5}{8}$ " i. **WA28-30** $\frac{15}{16}$ "
g. **WA28-26** $\frac{13}{16}$ " †k. **WA28-22** $\frac{11}{16}$ "
h. **WA28-28** $\frac{7}{8}$ " †l. **WA28-24** $\frac{3}{4}$ "
†Shorter versions of e. and f. at left.

WA309B Caster-Camber Set. Includes WA309 Set at left in KRA40 Metal Box (p. 22).

WA24A Torque Adaptor Wrench. Similar design as WA28A at left, except it's for Pontiac and Oldsmobile. Features $\frac{3}{4}$ " double hex reverse-ratcheting "BOXOCKET". Chrome finish. $5\frac{1}{32}$ " long.

A WAM302FL Caster-Camber Set. For wheel alignment adjusting fasteners on current GM autos.

a. **WAM18FL Flexhead Ratcheting "BOXOCKET."** Similar design as WA28AFL at left, except reversible "BOXOCKET" has 18 mm double hex. $17\frac{1}{2}$ " long.

b. **WAM18-18 Socket.** Similar design as WA28-24L at left, except it has 18 mm male hex and 18 mm double hex wrench size.

C YA141 Caster-Camber Axle Press. For Ford twin "I" beam trucks and vans through 350 series. Makes both positive and negative corrections of caster or camber. Color-coded components for various applications. Use with 12- or 20-ton flat base jack. Not for use on solid axles. **Caution:** Wear approved eye protection.

D WA171D Caster-Camber Hook. For Ford, Mercury and Chrysler. Hook fits over upper suspension arm inner shaft, tapered end into hole in frame. Adjustment made by moving shaft. 18" long. Chrome finish.

E WA25A Caster-Camber Tool Set. For late-model Ford, Torino, Lincoln, Mercury and T-Bird. Holds upper arm shaft when retaining bolts are loosened. Includes $\frac{3}{8}$ " long hook screws. Chrome finish, black screws.

F WA35 Caster-Camber Tool Set. This alignment adjuster set is for 1979 full size Ford and Mercury cars. $4\frac{3}{8}$ " long offset hook screws. Black finish.

G GA469 Caster-Camber Tool. For Dodge Charger, Coronet and Plymouth Satellite. Use with $\frac{3}{4}$ " socket. $4\frac{3}{4}$ " long. Black finish.

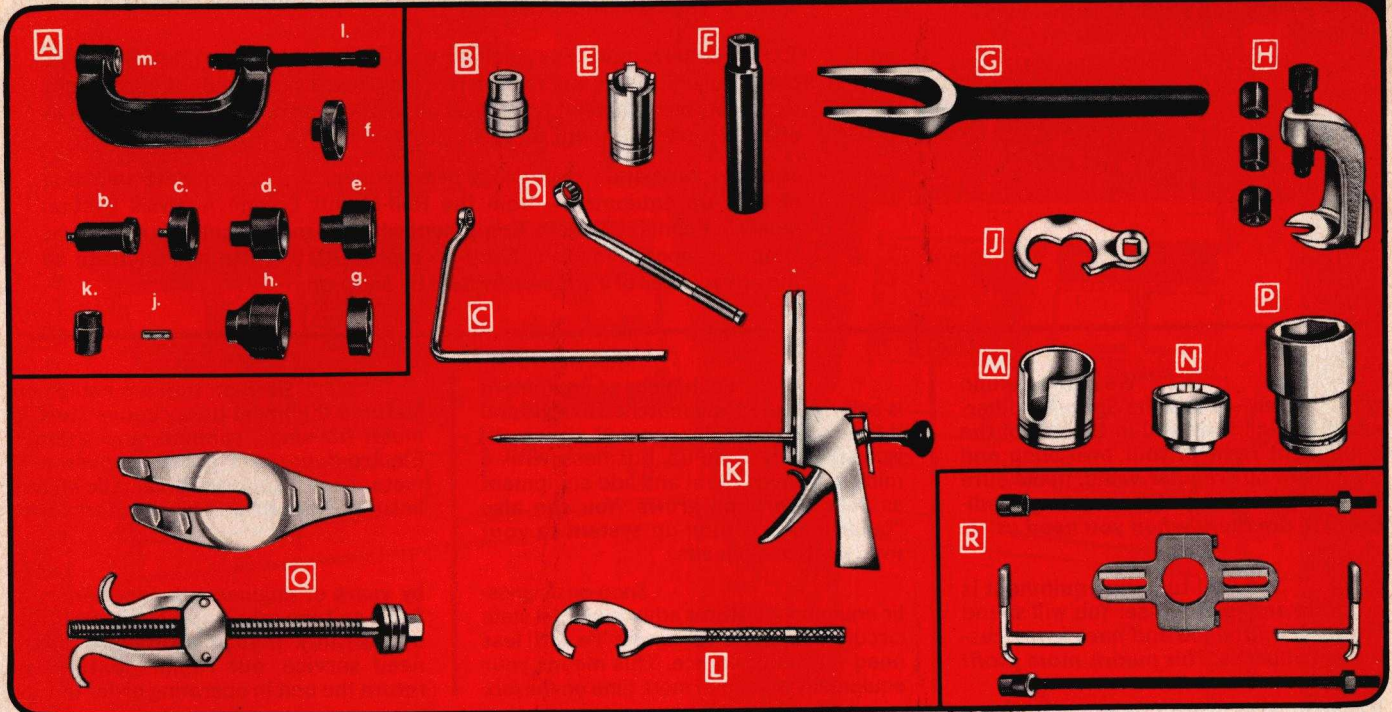
H S5932 Camber Adjustment Tool. For VW Dashers. $\frac{1}{2}$ " drive, $4\frac{9}{16}$ " long. Chrome finish.

I S8686A Caster-Camber Wrench. $\frac{1}{2}$ " drive, $\frac{3}{4}$ " double hex "BOXOCKET". $7\frac{1}{16}$ " long. Chrome finish.

K YA130 Caster Adjusting Wrench. For 1961-current Cadillacs and 1965-70 Chevrolets. Slips over strut rod to permit adjusting caster with $\frac{1}{2}$ " drive ratchet. $2\frac{3}{4}$ " long. Chrome finish.

L S8699B Caster-Camber Tool Set. Includes 2 tools for front upper arm inner shaft on '74 Mustangs, $5\frac{3}{8}$ " long. Also includes 2 tools for rear upper arm inner shaft on '74 Mustangs and 1971-72 Pintos, $4\frac{1}{8}$ " long. Chrome finish, black screws.

S8702 Caster-Camber Tool Set. Similar to S8699B above, except it's for use on 1974-current Pintos. 2 units are $4\frac{3}{4}$ " long; 2 are $4\frac{1}{2}$ " long. Chrome finish, black screws.



CAUTION: Always wear approved eye protection when using presses, impact equipment, tie rod separators and spring compressors.

A CJ76C Ball Joint Press Set. For pressed in lower ball joints on 1971-current GM cars and some trucks. Includes **b** through **m**:

b thru **k** INCLUDED ADAPTORS

Stock No.	Description	Stock No.	Description
b CJ76-2A	Driving Adaptor	g CJ76C10	Replacer Adaptor
c CJ76-6A	Driving Adaptor	h CJ76C8	Receiving Adaptor
d CJ76-5	Receiving Adaptor	i CJ76C11	Pin Adaptor
e CJ76-7	Receiving Adaptor	k CJ76C12	Sleeve Adaptor
f CJ76C9	Replacer Adaptor		

l CJ91-7 Pressure Screw. $\frac{3}{4}$ "-16 thread, $\frac{7}{8}$ " hex head, $8\frac{3}{4}$ " long.

m CJ91D1 Frame. $9\frac{15}{16}$ " in overall length with a throat length of $6\frac{1}{4}$ "

ADAPTOR SPECIFICATIONS

Stock No.	I.D.	O.D.	Length	Stock No.	I.D.	O.D.	Length
CJ76-2A	$\frac{13}{16}$ "	$\frac{13}{4}$ "	3"	CJ76C10	$\frac{23}{8}$ "	$\frac{22}{32}$ "	$\frac{15}{16}$ "
CJ76-6A	$\frac{29}{16}$ "	$\frac{2}{2}$ "	$\frac{11}{16}$ "	CJ76C8	$\frac{21}{16}$ "	3"	$\frac{29}{8}$ "
CJ76-5	$\frac{2}{4}$ "	$\frac{29}{16}$ "	$\frac{2}{4}$ "	CJ76C11	—	$\frac{3}{8}$ "	$\frac{13}{8}$ "
CJ76-7	$\frac{2}{2}$ "	$\frac{27}{8}$ "	$\frac{2}{4}$ "	CJ76C12	$\frac{21}{32}$ "	$\frac{1}{4}$ "	$\frac{115}{16}$ "
CJ76C9	$\frac{21}{16}$ "	3"	$\frac{115}{32}$ "				

SHOCK ABSORBER SOCKETS

$\frac{1}{2}$ " Drive			$\frac{3}{4}$ " Drive		
Stock No.	Wrench Size	Overall Length	Stock No.	Wrench Size	Overall Length
B A135	$\frac{15}{16}$ " x $\frac{21}{64}$ "	$\frac{15}{8}$ "	A137	$\frac{1}{2}$ " x $\frac{5}{16}$ "	$\frac{29}{32}$ "
A136	$\frac{1}{4}$ " x $\frac{5}{16}$ "	$\frac{15}{8}$ "	A138	$\frac{15}{64}$ " x $\frac{21}{64}$ "	$\frac{29}{32}$ "

C S9623 Shock Absorber Wrench. Removes rear shock absorber upper retaining nut on 1974-77 B and C vehicles from GM, plus other applications. $\frac{1}{2}$ " double hex. Handle is 8" long. Hex center to handle center is $5\frac{1}{16}$ ". Head diameter is $\frac{3}{4}$ "; head width is $\frac{11}{32}$ ". Chrome finish.

D S9716 Rear Shock Absorber Wrench. Has $\frac{1}{2}$ " double hex "BOXOCKET" for servicing upper retaining nut on rear shock absorbers for 1967-current GM autos.

E S9613 Truck Spanner Socket. For Series 44-5B axles on Dodge, Ford, GMC, Chevrolet and International trucks. Adjusts sleeve on top of yoke on front suspension.

S6109 Lug Nut Socket. Similar in design to S9613 above. $\frac{1}{2}$ " drive lug nut socket for late model Ford and Chevrolet trucks with DANA 4-wheel drive axles.

F S9620 Stabilizer Bar Retainer Socket. $\frac{1}{2}$ " drive impact socket. $\frac{1}{2}$ " single hex. 5" long.

S9618 Fuel Tank Nut Socket (for GM and some other cars). Removes or replaces fuel tank retaining strap nuts. O.D. at socket end is $\frac{7}{8}$ "; handle is $\frac{15}{16}$ ". $\frac{1}{2}$ " drive, $\frac{9}{16}$ " hex. 5" long. Black finish.

S9620 Fuel Tank Nut Socket (for GM and some other cars). Similar to S9618 above. Also has applications on emergency brake adjustment nuts and stabilizer bar retainers. $\frac{1}{2}$ " drive, $\frac{1}{2}$ " hex, 5" long. Black finish.

G TIE ROD SEPARATORS

Stock No.	Jaw Opening	Thickness	Overall Length
A200	$\frac{13}{16}$ "	$\frac{7}{8}$ "	18"
A201	1"	$\frac{15}{16}$ "	12"
A203	$\frac{1}{4}$ "	$\frac{15}{16}$ "	12"
A204	$\frac{5}{8}$ "	$\frac{7}{8}$ "	12"

H GA390 Tie Rod End Remover. Also good for control valve ball studs. Includes 3 pilot nuts in sizes $\frac{7}{16}$ ", $\frac{1}{2}$ " and $\frac{3}{8}$ ". Anvil measures $3\frac{3}{4}$ " x 2".

J WA16 Toe-in Adjusting Tool. For 1965-current Ford trucks. $\frac{1}{2}$ " drive, $4\frac{7}{64}$ " long.

WA12A Toe-in Adjusting Tool. Similar to WA16 above, except it's for larger cars and trucks. $\frac{1}{2}$ " drive, $3\frac{3}{4}$ " long.

WA13A Toe-in Adjusting Tool. Similar to WA12A above, except for smaller cars.

K B240A Brake Pedal Jack. Trigger-controlled unit slides to any position on $24\frac{1}{2}$ " long shaft. Thumb lock releases pressure easily.

L WA10A Tie Rod Adjusting Tool. For small and medium cars. 9" long.

WA11A Tie Rod Adjusting Tool. Similar to WA10A above, except it's for large cars and trucks. 9" long.

M WA14A Tie Rod End Socket. Fits most cars and some trucks. U-shaped opening measures $1\frac{3}{8}$ " x $\frac{3}{4}$ ". Use with $\frac{1}{2}$ " drive wrench. $1\frac{15}{16}$ " I.D., $\frac{2}{4}$ " long.

N S9365A Ball Joint Socket. For Plymouth and Dodge automobiles. $\frac{3}{4}$ " drive, $2\frac{3}{16}$ " I.D., 2" long. Chrome finish.

S9479 Ball Joint Socket. Similar to S9365A above. For 1972-76 Dodge pickups and vans and on some 1957 and later Chrysler, Dodge and Plymouth products.

P S6302 Ball Joint Socket. For compact Chrysler cars. $\frac{3}{4}$ " drive. O.D. at drive end is $1\frac{7}{8}$ " and $2\frac{1}{4}$ " at wrench end. Chrome finish.

Q GA258A Coil Spring Compressor. Set holds coil spring at desired tension for removal of other parts. Standard 11" screw is included. Chrome finish.

GA267A Screw. Use with GA258A above for AMC applications. 8" long.

GA268A Screw. Use with GA258A above for foreign car applications. $5\frac{1}{2}$ " long.

R LBT103 Coil Spring Compressor. For some MacPherson front end struts. Includes 2 spring hooks, a split collar and 2 draw bolts that can be turned with an impact wrench. Draw bolts are 1" hex and $20\frac{1}{4}$ " long. Natural finish.

- **QUALITY**
- **PERFORMANCE**
- **PROFIT**

Today, modern motorists demand that their vehicles run better and be more fuel efficient than ever before. This creates a tremendous opportunity for the automotive technician — an opportunity to meet these demands by offering quality tune-up service.

Snap-on solid-state technology provides you with a complete selection of tune-up equipment — from the Rail-Mount Engine Analysis System below to Economy Meters. Equipment which is sophisticated in design yet simple in operation. Your Snap-on representative can demonstrate all the advantages of a Tune-up system by Snap-on.

Training and Service... We stand behind what we sell — that's the Snap-on difference! We will train you in the use of the equipment right in your own shop and then, with our regular visits, make sure the equipment is in top operating condition. *We are there when you need us.*

Profits... Snap-on tune-up equipment is accurate and easy to use. You will spend less time on the job and have fewer customer callbacks. *This means more profit for you.*

Compatibility... Each piece of equipment is self-contained and matched in style and design. This modular concept allows you to start your tune-up business with a minimum investment and add equipment as your operation grows. You can also "tailor-make" a tune-up system to your own particular needs.

Solid State Components... Snap-on diagnostic equipment features advanced solid state circuitry designed for longer life with less need for maintenance. This means your equipment will spend more time on the job.

Cabinetry... Snap-on tune-up equipment features the finest heavy gauge steel for meter housings, cabinets and shrouds. Electro-deposition painting gives each meter case a uniform red acrylic enamel finish that is both functional and attractive.

Warranty Protection and Service... backed by years of engineering experience, all Snap-on tune-up equipment is protected by warranty. If your equipment should need service, our repair centers will return the unit in operating order quickly.

MT4965 RAIL-MOUNT ENGINE ANALYSIS SYSTEM

Here is complete diagnostic capability and instant access — all in one compact unit. Designed to ride on a 4" overhead "I" beam rail, the versatility of the new Engine Analysis System is endless. No need to keep your test instruments stationary — no need to push a roll cab mounted system around a lot of obstacles or over rough, uneven floors... just slide it directly to the job. And the heart of the system is the Snap-on Oscilloscope; designed to meet the challenge of today's modern autos — and tomorrow's. *All you need is to provide the overhead rail and rail stops — we'll provide the MT4965 to help increase your profit potential.*

MT4965 COMPONENTS

- MT665 Oscilloscope (page 266).
- Cylinder Shorting Expanded Scale Tachometer (page 266).
- Timing-Advance Light (page 266).
- MT406 Volt-Ohm Meter (page 271).
- MT32 GM Diagnostic Plug Adaptor (page 238).

CABINTRY

- KRA449A Two-Meter Mounting Tray.
- KR490 Equipment Cabinet with Overhead Trolley (32" wide). Includes console carrier, overhead trolley, two full size cabinet handles, large storage compartment and a compartment door with two magnetic catches.

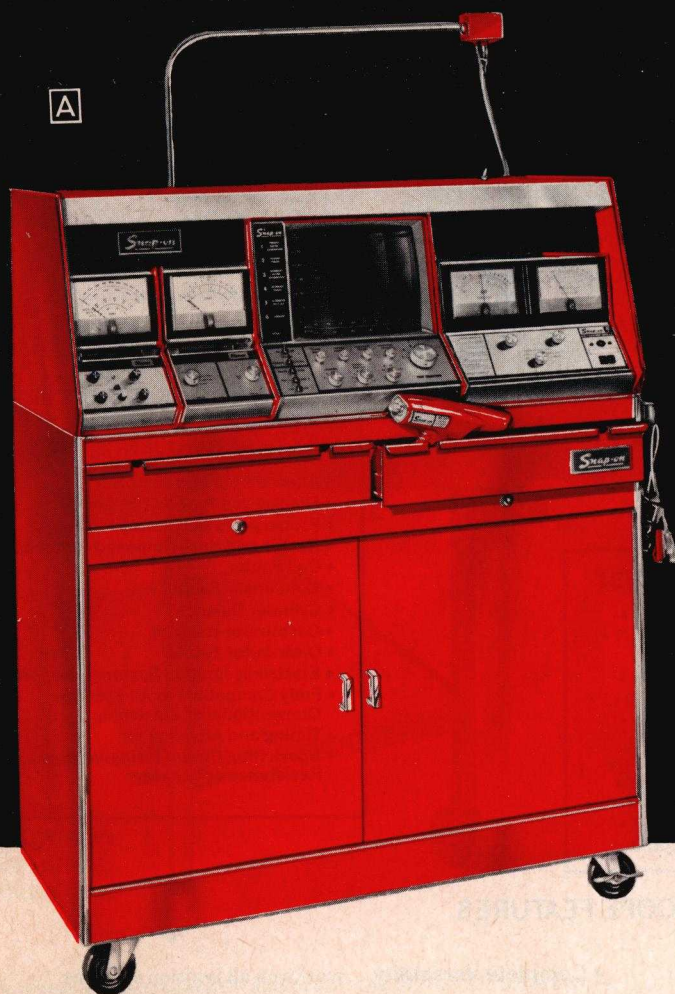
KR490 SPECIFICATIONS

Console Carrier: 32²⁷/₆₄" long, 28¹/₄" wide and 25¹/₁₆" high (less trolley).

Compartment Size: 32¹⁹/₆₄" long, 26³/₈" wide and 6¹/₁₆" high.

Compartment Volume: 852 Sq. In., 5,164 Cu. In.

IMPORTANT: "I" beam, beam holding brackets and safety stops must be provided by customer.



A MT4666A Deluxe Engine Analysis System. Performs nearly all aspects of automotive analysis and checks fuel economy levels. The MT4666A includes the new Snap-on Oscilloscope, the fuel-saving Performance Analyzer, plus other equally accurate test instruments described below. This specially designed System assures you of having the right meters for nearly all jobs...it means less diagnostic time and higher diagnostic reliability. Profits are protected because the job was done right, and there are fewer customer callbacks for re-work. It means repeat customers because of the quality workmanship image. And all these fine instruments are securely fastened

to a spacious equipment cabinet that features a large, shelf-divided storage compartment and two locking drawers. Four heavy duty casters provide mobility. The console is protected by a metal cowl to aid holding all instruments neatly and securely in place.

B MT4665A Engine Analysis System. This mobile version of the MT4965 (p. 264) includes all the same components. Performs most of the same functions as its large "Deluxe" companion at left, except it doesn't include the Performance Analyzer, and its equipment cabinet is accordingly less wide.

MT4666A COMPONENTS

- **MT665** Oscilloscope (page 266)
- Cylinder Shorting Expanded Scale Tachometer (page 266)
- Timing Advance Light (page 266)
- **MT497A** Performance Analyzer (page 267)
- **MT406** Volt-Ohm Meter (page 271)
- **MT32** G.M. Diagnostic Plug Adaptor (page 238)

CABINETRY

- **KR465A** Equipment Roll Cab (48" wide)
- **KR479** Console Shroud (48" wide)
- **KRA449A** Two-Meter Mounting Tray

OPTIONAL VINYL COVER



MTC16. This console cover is made of red expanded vinyl with knit backing, clear vinyl window, front access zippers and open back. 48" long, 19½" high and 21" deep.

MT4665A COMPONENTS

- **MT665** Oscilloscope (page 266)
- Cylinder Shorting Expanded Scale Tachometer (page 266)
- Timing Advance Light (page 266)
- **MT406** Volt-Ohm Meter (page 271)
- **MT32** G.M. Diagnostic Plug Adaptor (page 238)

CABINETRY

- **KR460B** Equipment Roll Cab (32" wide)
- **KR469** Console Shroud (32" wide)
- **KRA449A** Two-Meter Mounting Tray

OPTIONAL VINYL COVER



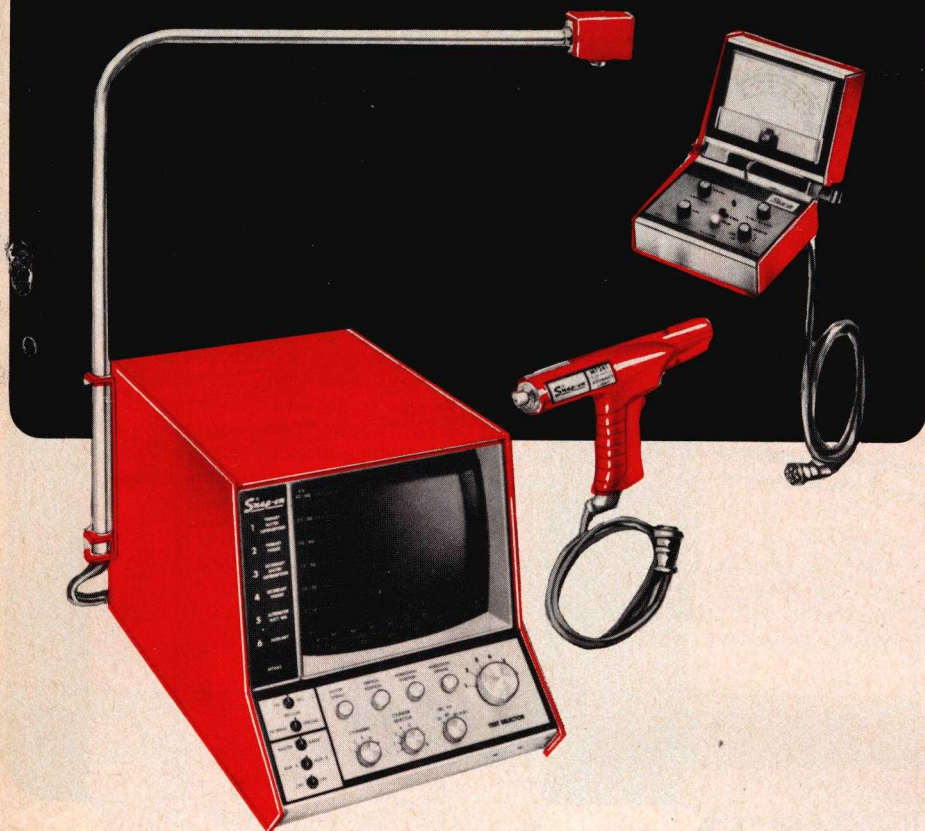
MTC15. Similar in construction and appearance to the MTC16 Cover at left. 32" long, 19½" high and 21" deep.

THREE PIECE PACKAGE

When you buy the MT665 Oscilloscope you also receive a Cylinder Shorting Expanded Scale Tachometer and an all-purpose Timing Advance Light. Together, all 3 units are capable of handling nearly any tune-up diagnostic problem.

**TESTS PERFORMED
BY OSCILLOSCOPE/
CYLINDER SHORTING
EXPANDED SCALE TACHOMETER/
TIMING ADVANCE LIGHT**

- Alternator Diode Patterns
- Display and Parade Patterns
- Primary and Secondary Patterns
- Raster and Superimposed Patterns
- Coil Faults
- Condensor Faults
- Cylinder Balance
- Carburetor Balance
- Distributor Faults
- Electronic Ignition System Components
- Fully Compatible to All Systems...
Conventional or Electronic
- Timing and Advance
- Spark Plug Circuit Firing Voltages,
Resistance or Leakage



OSCILLOSCOPE FEATURES

- **Easy-to-See Screen**...a 15" rectangular display tube and medium blue non-glare viewing screen provide clear, bright, distinct patterns in almost any lighting condition. Kilovolt scales are in clear white divisions.
- **Easy-to-Use Controls** are on an inclined front control panel, clearly marked for function. Test-sequence-panel lights up the selector position and related tests.
- **Many Test Patterns**...AC and DC mode patterns, dead engine patterns and cylinder patterns singly, all at one time, superimposed, vertically or side-by-side.
- **Operates off Standard 115V. Wall Outlet**...provides clear, bright pictures that only line voltage can give.

- **Complete Versatility**...works on all ignition systems.
- **Only Five Vehicle Connections**...connectors are clamp-type wherever possible for highest efficiency.
- **Separates Problems**...interprets mechanical from electrical problems.
- **Card/Rack Circuits** easily slide out for servicing. Advanced 100% solid-state technology is incorporated in these circuits.
- **External Connections** for adding any "400 Series" Meter.
- **Fully Protected** by a series of circuit breakers.
- **Overhead Boom** keeps test leads out of your way.

COMPONENT FEATURES

CYLINDER-SHORTING EXPANDED SCALE TACHOMETER

Functions as Primary Tach-Dwell Meter, Cylinder Shorting Device that selectively shorts cylinders and an expanded Tachometer. Features shorting indicating lamp. Will work on all standard ignition systems and electronic ignition systems with a "tach" output available. Lead set plugs into back of Oscilloscope.

SPECIFICATIONS

Dwell Scales: 8 cylinder, 0-45° (1° divisions); 6 cylinder, 0-60° (2° divisions); 4 cylinder, 0-90° (2° divisions).

Tach Scales: 0-1600 RPM (20 RPM divisions); 0-8000 RPM (100 RPM divisions).

Expanded Tach Scales: Downscale, 0-400 RPM (10 RPM divisions); upscale, 10-100 RPM (10 RPM divisions).

TIMING-ADVANCE LIGHT

Designed to check the timing of engines with graduations of degrees before and/or after top dead center. Also checks mechanical and vacuum advance. A rear adjustment knob allows adjusting the flash from 0 to 60 engine degrees from the time of the spark plug firing. At any point on the scale up to the maximum of "60," the flash will be delayed by the respective number of engine degrees. Included is a set of leads that plugs into rear of Oscilloscope.

SPECIFICATIONS

Power Supply: 12 volt.

Engine Advance: 0 to 60° maximum for each separate test because of delay built into unit.

MT497A PERFORMANCE ANALYZER

Meters



MT497A
SHOWN ON
OPTIONAL
ROLL STAND



TESTS PERFORMED

- Fouled Spark Plugs
- Faulty Spark Plug Wires
 - Vacuum Leaks
- Defective PCV Valve
- Too Rich Idle Mixture
- Restricted Air Filter
 - Ignition Problems
 - Faulty Choke
- Defective Air Injector System
- Faulty Power Circuit
- Carburetor Problems

REPLACEMENT FILTER

MT497-10 Exhaust Gas Filter Element.

Designed to effectively filter out liquid and solid impurities from exhaust gas sample. It must be replaced periodically to help ensure valid readings...it must be replaced at once if it is discolored or the analyzer's NO FLOW light is on and neither hole in the probe end is plugged nor the plumbing restricted. Made of borosilicate glass microfiber with epoxy resin binder, this 25 micron, type 92 filter is 2½" long with an I.D. of 1"

Engineered for dependability and profit, the MT497A Performance Analyzer offers a lot in checking fuel performance levels in autos. A high degree of accuracy coupled with a fast response time provides efficiency in meeting stringent emission standards while at the same time providing the greatest fuel economy for your customer's car... it means a savings for your customer and fast profits for you. With today's growing consumer awareness of fuel conservation, as well as

of emission standards, the MT497A stands ready to profitably perform for you. It is also available mounted on a sturdy, mobile roll stand...allowing you to roll it right to the job.

MT497A Performance Analyzer. Instrument only.

MT497AS Performance Analyzer. Includes instrument plus the KR482 Roll Stand (pictured above, described below).

MT497A FEATURES

- **Solenoid Operated Gas Flow Valve** internally seals the gas flow from leaking when switching from test to test.
- **Simplified Control Panel** features integrated design with a minimum number of controls.
- **Fast Response Time**... just 10 seconds for 90% of full scale.
- **S-Shaped Pick-up** allows outside exhaust hose to be used; a weight bag holds it securely in place.
- **30-Foot Pick-up Hose** allows easy access to any exhaust system of any car.
- **Heat Exchanger** allows the analyzer to be used with very hot running engines — such as catalytic converters.
- **Replaceable Exhaust Gas Filter** prevents solid impurities from contaminating the analyzer.
- **Two 6" Jewel Movement Meters** allow easy-to-read simultaneous readings of both Hydrocarbons and Carbon Monoxide.
- **Future Capabilities**...the MT497A is designed for even greater sensitivity with only slight modifications.

MT497A SPECIFICATIONS

Dimensions: 12½" high (49½" high with Roll Stand), 16" wide and 27" deep.

Hydrocarbon Scale: 0 to 500 PPM (parts per million) in 10 PPM divisions; 0 to 2000 PPM in 20 PPM divisions.

Carbon Monoxide Scale: 0 to 2.5% in 0.1% divisions, 0 to 10% in 0.2% divisions.

OPTIONAL ROLL STAND

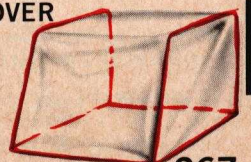
KR482 Roll Stand. This sturdy four leg stand includes a top and bottom tray for small parts and tools storage, four heavy duty casters for mobility, plus a bracket for holding calibration gas container. 34¼" high and 15" deep.

OPTIONAL ACCESSORY

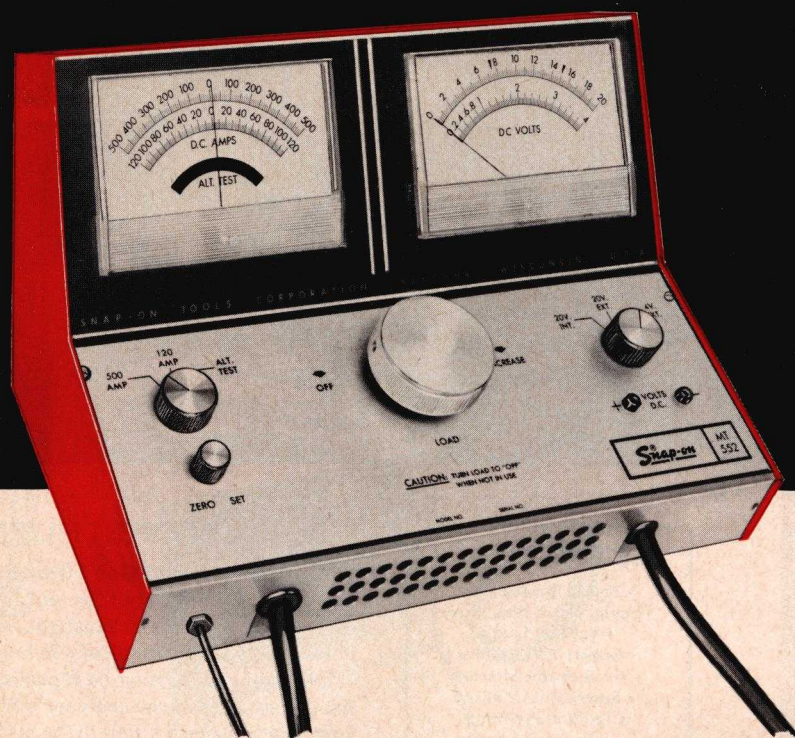
MT90 Calibration Gas Regulator Kit. Use to calibrate the Hydrocarbon portion of instrument.

OPTIONAL VINYL COVER

MTC8 Vinyl Cover. This optional heavy-gauge clear vinyl cover features red vinyl reinforced edges to adequately protect the MT497A Performance Analyzer from dust and dirt build-up.



MT552B AVR TESTER



TESTS PERFORMED BY MT552B AVR TESTER

- Voltage Regulator (Including Transistor)
- Battery Load
- Starter Current Draw
- Alternator Output
- Alternator Diode
- Generator Output
- Circuit Resistance
- Voltage
- Amperage
- Battery Drain
- Starting System Resistance
- Solenoid Operation

Quality...precision...simplicity...accuracy...the **MT552B AVR Tester** has it all for testing 6 or 12 volt charging and starting systems. What once took as long as an hour to diagnose various problems now takes only 5 minutes...or less. The end results — profits! In one efficient, compact unit is a multi-range Voltmeter,

Ammeter, Carbon Pile Load and Battery Tester. The unit is mounted on the sturdy **KR481A Stand** for mobility...roll it right to the job. Four basic programmed steps coupled with a simple three lead hook-up provide speed and accuracy...and you're on your way to sure, steady profits.

MT552B FEATURES

- Easy-to-read, color-coded 6" meter dials are protected by unbreakable plastic face covers.
- Heavy gauge steel case in protected by a red enamel finish. Instrument panel is brushed aluminum.
- Precision instruments are calibrated to extreme accuracy.
- Equipped with smooth-rolling stand for complete portability. Stand has three convenient trays for tool storage.
- Programmed test sequence requires only four steps, saving time and trouble.
- Large control knobs are clearly marked and easy to turn.
- 6' long load leads are color-coded for easy hook-up.
- Ammeter readings are made with an inductive clip...it senses current right through leads.
- Variable carbon pile provides positive control over charging system at all times.
- Handles both 6 and 12 volt systems.
- Complete test and hook-up instructions are included.

MT552B SPECIFICATIONS

Dimensions: 16" wide, 17" deep and 12 $\frac{3}{8}$ " high (49 $\frac{1}{2}$ " high including Stand and casters).

Ammeter Range: — 120 to +120 amps (2 amp divisions); — 500 to +500 amps (10 amp divisions).

Voltmeter Ranges: 0 to 4 Volts (.04 Volt divisions); 0 to 20 Volts (0.2 Volt divisions).

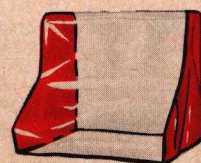
ROLL STAND

KR481A Roll Stand. Included as an integral part of the MT552B, this sturdy stand provides easy rolling mobility on its four heavy-duty casters. It features three trays for small parts and tools storage. 34 $\frac{1}{4}$ " high, 15" deep.

OPTIONAL ACCESSORIES

YA313 Test Lead Set. Includes 10 jumper leads for hooking up an alternator or generator to testing equipment. Works on all domestic and imported charging systems.

MTC7 VINYL COVER. This optional heavy-gauge, clear vinyl cover features fabric-supported ends and reinforced edges and seams. It protects your investment from dust and dirt build-up.

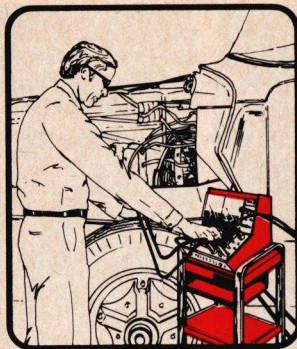


MT540C HEAVY-DUTY AVR TESTER

Meters

- TRUCKS
- HEAVY DUTY EQUIPMENT
- AUTOMOBILES

The MT540C combines a Field Rheostat, AC or DC Voltmeter, DC Ammeter, Carbon Pile Load and Battery Tester. This tester can check trucks and heavy duty equipment as well as auto applications. It handles 6, 12, 24, 30, 32 or 60 volt systems...allowing use on most vehicles.



Shown on Optional Roll Stand



TESTS
PERFORMED
BY THE MT540C

- | | | | |
|------------------------------|------------------------------|----------------------|----------------------|
| • Battery Load | • Current Regulator Setting | • Generator Output | • Field Current Draw |
| • Starter Current Draw | • Cutout Opening and Closing | • Voltage Regulator | • Voltage |
| • Starting System Resistance | | • Circuit Resistance | • Amperage |
| • Alternator Output | | • Solenoid Operation | • Battery Drain |

MT540C FEATURES

- Easy-to-read meter faces.
- Variable carbon pile provides positive control over charging system.
- Field current draw readings made by simply flipping a switch.
- Red warning light indicates when carbon pile is on.
- Long, color-coded leads lock in with a quarter turn.
- Sensitive earphone plugs into tester for accurately checking upper and lower point settings.
- Large, easy-to-turn knobs.
- Heavy gauge steel case has red enamel finish with brushed aluminum trim.
- Simplified test and hook-up procedures detailed in instruction booklet.
- Mounts on *optional* KR481A Stand for added mobility (described below right).

MT540C SPECIFICATIONS

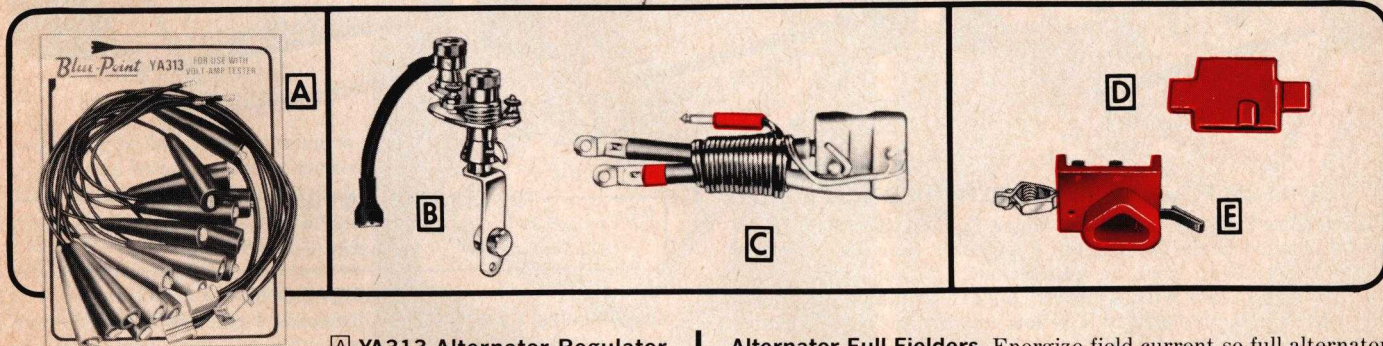
Dimensions: 16" wide, 17" deep, 12 $\frac{3}{8}$ " high.

Ammeter Ranges: -10 to +120 amps (1 amp div.); -1 to +12 amps .1 amp div.; -50 to +600 amps (5 amp div.); with shunt -100 to +1200 amps.

Voltmeter Ranges: 0-4 Volts (.02 V. div.); 0-20 Volts (.1 V. div.); 0-60 Volts DC or AC (.5 V. div.).

Field Rheostat: Heavy-duty 100 ohm, fuse protected.

MT540C ACCESSORIES



[A] YA313 Alternator-Regulator Test Lead Kit. Includes 10 jumper leads from 10 $\frac{1}{4}$ " to 23 $\frac{3}{4}$ " long with terminals or molded plugs on one end and either red, green or black insulated test clips on the other end. Works on all domestic and most imported charging systems. Complete instructions are included.

[B] MT358C Universal Battery Post Adaptor. For either post or side terminals. Has $\frac{1}{4}$ " ohm resistor to simulate fully charged battery. Includes negative post and DELCO connectors.

[C] MT541C Ampere Shunt. To check current flow from 600 to 1200 amps when readings are taken with the starter on heavy-duty electrical equipment. Phone-type plug connector. Can use with any 50 milli-volt meter.

Alternator Full Fielders. Energize field current so full alternator output can be measured. Bypass voltage regulators...isolate charging circuit problems. Use with MT540C above...or with MT807A Volt-Amp Meter (p. 272) or MT109 and MT110 Induction Meters (p. 275).

[D] FF100. Accepts all standard DELCO, Ford and Chrysler voltage regulator connectors. 3 $\frac{3}{4}$ " long.

[E] FF101. For all DELCOTRON, Ford and Chrysler voltage regulator connectors in electronic ignition systems. 4 $\frac{1}{2}$ " long.

MTC7. Heavy gauge vinyl protects instrument from dust and dirt. Illustrated on p. 268.

OPTIONAL ROLL STAND

KR481A. Features 3 trays for small parts and tools storage and 4 heavy-duty casters for smooth-rolling mobility. 34 $\frac{1}{4}$ " high and 15" deep.

MT4600A TUNE-UP CENTER

All four meters in this system are completely self-contained and can be removed from the console. They can be replaced by any "400 Series" Meters to meet your specific needs. This set includes the following:

MT460A Cylinder Shorting Expanded Scale Tachometer (see below), **MT431B Ignition Analyzer** (page 271), **MT425E Vacuum-Fuel Pump Gauge** (page 271), **MT406 Volt-Ohm Meter** (page 271) and **MT241 Timing Advance Light** (page 274).

CABINETYRY

KR460B (32") Roll Cab. Measures 32" wide, 41 $\frac{3}{4}$ " from top to floor and 20 $\frac{7}{8}$ " deep. 2 drawers are 13 $\frac{7}{8}$ " long, 19 $\frac{7}{32}$ " wide and 4 $\frac{1}{2}$ " deep. Compartment is 28 $\frac{3}{16}$ " x 29 $\frac{13}{16}$ " x 17 $\frac{3}{4}$ ".

KR469 (32") Console Shroud. Holds instruments neatly and securely in place.

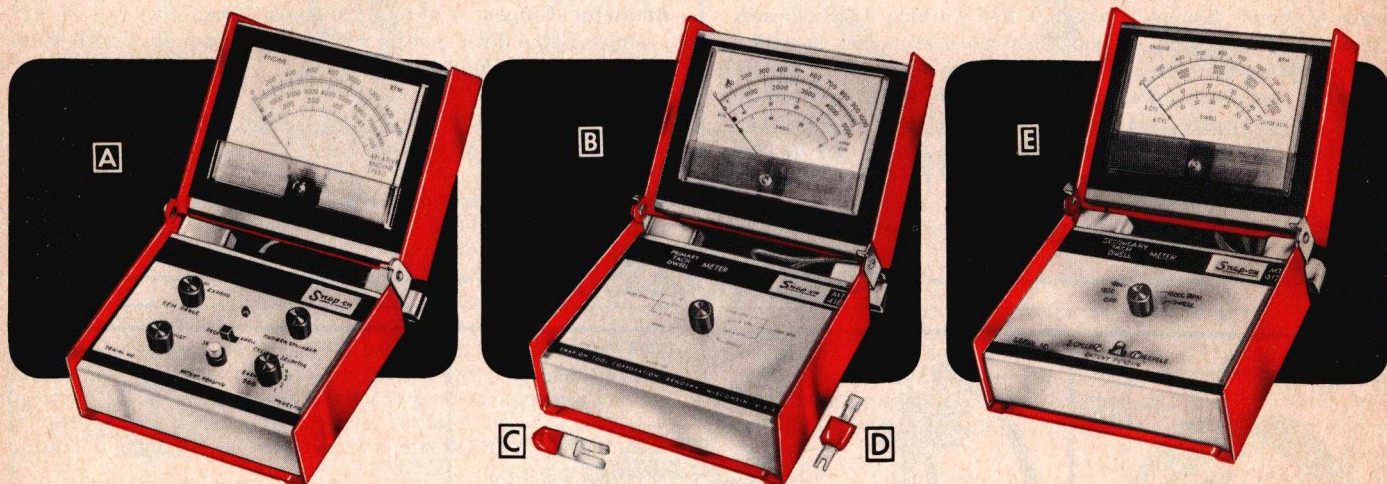
KRA449A Two-Meter Mounting Tray. Two included.

OPTIONAL VINYL COVER

MTC15 (32") Vinyl Console Cover. Made of red expanded vinyl with a knit backing and a clear vinyl window to protect your meters from dust and dirt.

MATCHED METERS

- Easy-to read 6" meters.
- Fold the cases at any angle for easy viewing or storage protection.
- Chrome handles form bracket to provide winding storage for leads.
- Leads exit from back of cases for uncluttered appearance.
- Rubber feet help prevent slipping or marring on any surface.
- Red enamel cases with brushed aluminum cover plates for long-lasting finish.
- Matched appearance, yet fully self-contained units.
- Detailed, explicit instructions included with every meter.



A MT460A CYLINDER SHORTING EXPANDED SCALE TACH.

Functions as Primary Tach-Dwell Meter, Cylinder Shorting Device and Expanded Scale Tachometer. Features a shorting indicating lamp. Designed to work on all standard ignition systems and electronic systems with a "tach" output available. Lead set includes an inductive pick-up, a yellow clip for the "tach" terminal and color-coded battery leads.

B MT418 PRIMARY TACH-DWELL METER

One rotary control permits switching between tach and dwell readings with one hook-up. The 9' leads include 2 color-coded battery clips and yellow lead for ignition hook-up. Solid state circuitry makes this meter ideal for testing both standard and electronic ignitions.

SPECIFICATIONS

Dwell Scales: 8-cyl., 0-45° (1° divisions); 6-cyl., 0-60° (2° divisions); 4-cyl., 0-90° (2° divisions).

Tach Scales: 0-1600 RPM (20 RPM divisions); 0-8000 RPM (100 RPM divisions).

OPTIONAL COIL TERMINAL ADAPTORS

C FC200. One pair. For connecting MT418 to Ford coils. No disconnect necessary. 2 $\frac{1}{8}$ " long. One shown.

D FC201. One pair. For Ford and GM electronic ignitions. 2 $\frac{13}{16}$ " long. One shown.

TESTS WHICH CAN BE PERFORMED

- Engine RPM
- Carburetor Balance
- Slight RPM changes
- Cylinder Balance
- Dwell Measurement

SPECIFICATIONS

Dwell Scales: 8-cyl., 0-45° (1° divisions); 6-cyl., 0-60° (2° divisions); 4-cyl., 0-90° (2° divisions).

Tach Scales: 0-1600 RPM (20 RPM divisions); 0-8000 RPM (200 RPM divisions).

Expanded Tach Scales: Downscale, 0-400 RPM (10 RPM divisions); Upscale, 10-100 RPM (10 RPM divisions).

E MT417A SECONDARY TACH-DWELL METER

Checks engine speed and dwell on 2- and 4-cycle engines using 12-volt negative ground systems. Meter has 3 tachometer scales, three dwell scales, a 5-position rotary switch and a slide switch for 2- or 4-cycle engines. This unit can be used on standard ignition systems, all electronic ignition systems and some magneto systems.

SPECIFICATIONS

Dwell Scales: 8-cyl., 0-45° (1° divisions); 6-cyl., 0-60° (2° divisions); 4-cyl., 0-90° (2° divisions).

Tach Scales: 400-1400 RPM (10 RPM divisions); 0-5000 RPM (100 RPM divisions); 0-15000 RPM (300 RPM divisions).

Case Dimensions for Above Meters: Open, 7 $\frac{5}{8}$ " x 13 $\frac{1}{4}$ " x 8 $\frac{1}{4}$ " deep; closed, 7 $\frac{5}{8}$ " x 9 $\frac{1}{4}$ " x 5" deep.

A



A MT431B IGNITION ANALYZER

Single control rotary switch for 50 KV scale, 25 KV scale, 20 VDC scale and pick-up coil voltage scale. Also has cable leakage indicator lamp. Cables include color-coded battery leads and insulated capacitive pick-up. Use on standard or electronic ignition systems. Tests listed below can be made on dead or running engines.

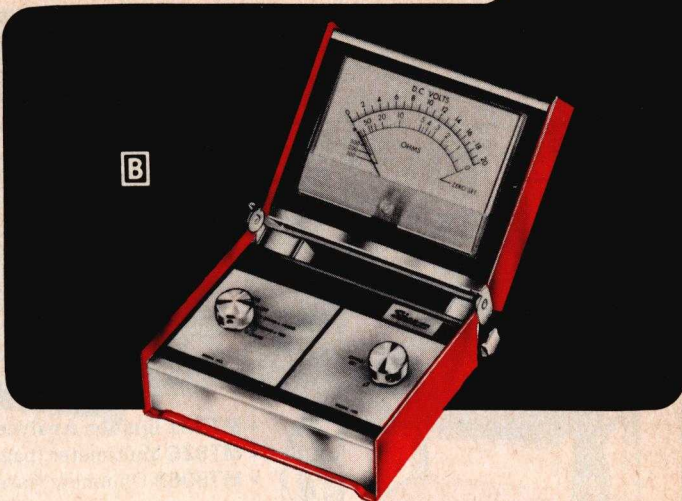
TESTS WHICH CAN BE PERFORMED

- Primary Ignition Voltage
- Electronic Ignition Pick-up Coil
- Spark Plug Wires
- Spark Plug Firing Voltage
- Coil Output
- Secondary Ignition Voltage

SPECIFICATIONS

Upper Black Scale: 0-50 KV (1 KV divisions); **Green Scale:** 0-25 KV (1 KV divisions); **Red Scale:** 0-20 VDC (1 VDC divisions); **Lower Black Scale:** 0-8 peak voltage (0.4 Volt divisions).

B



B MT406 VOLT-OHM METER

Designed to make voltage plus high and low resistance tests needed for components of today's sophisticated electronic ignition systems. Can be used on any other automotive electrical system. Has 2 color-coded test leads for both meter functions.

TESTS WHICH CAN BE PERFORMED

- Dead Engine
- Standard Ignition Circuit
- Electronic Ignition Circuit
- Cranking Circuit
- Plug Wire Resistance
- Diode Efficiency
- DC Voltage
- Continuity

SPECIFICATIONS

Voltmeter Range: 0-20 Volts (0.2 Volt divisions).
Ohmmeter Range: 0-500 ohms, 0-500 ohms x 100, 0-500 ohms x 10,000.

C MT455A IGNITION TIMING & ADVANCE METER

Designed for the precise timing requirements for an expanding market for engines with a magnetic pick-up receptacle near the harmonic balancer. Reads engine advance and RPM simultaneously. Makes sure advance is a smooth and not an erratic curve. Test leads include 9-foot color-coded battery leads, an inductive pick-up and a magnetic pick-up. *An optional magnetic pick-up is available for use with GM 1980 "X" body cars.*



TESTS WHICH CAN BE PERFORMED

- Engine RPM
- Initial Engine Timing
- Mechanical and Vacuum Advance

SPECIFICATIONS

Engine Degrees Meter: -10° to $+30^{\circ}$ (0.5 $^{\circ}$ divisions); -10° to $+90^{\circ}$ (2 $^{\circ}$ divisions).

Engine RPM Meter: 500 to 1600 RPM (10 RPM divisions); 0 to 6000 RPM (100 RPM divisions).

OPTIONAL PROBE

MT87 Magnetic Pick-up. For 1980 GM "X" body autos.

Case Dimensions for Above Meters: Open, 7 $\frac{5}{8}$ " x 13 $\frac{1}{4}$ " x 8 $\frac{1}{4}$ " deep; closed, 7 $\frac{5}{8}$ " x 9 $\frac{1}{4}$ " x 5" deep.

C

D



D MT425E VACUUM-FUEL PUMP GAUGE

Vacuum is measured on upper scale and fuel pump pressure on lower scale. Bottom of case is a storage area for accessories. Unit includes a 10' rubber hose and 12 vacuum gauge adaptors (page 277). Also can be used on rotary engines.

TESTS WHICH CAN BE PERFORMED

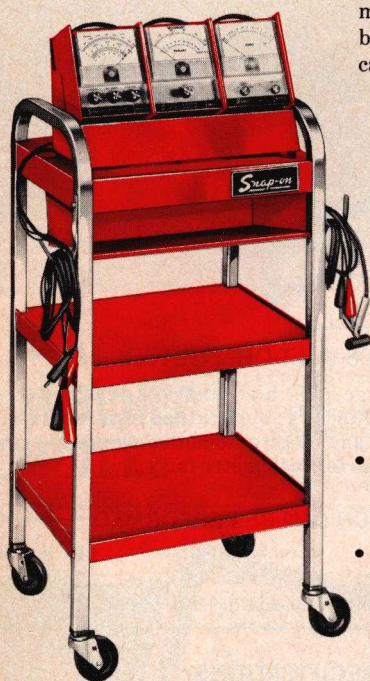
- Vacuum Operated Accessories
- Exhaust Back Pressure
- Valve Problems
- Intake System Leakage
- Fuel Pump Faults

SPECIFICATIONS

Vacuum Gauge Capacity: 0-28" mercury (1" divisions); **0-700 mm mercury (20 mm and 100 mm divisions).**

Fuel Pressure Gauge Capacity: 0-10 PSI; **0-700 g/cm², 0-70 kPa.**

MT1800 TUNE-UP CENTER



Here is a well-balanced selection of compact meters in one mobile package...ready to introduce the beginning mechanic to automotive diagnosis. Each meter is fully self-contained and can be substituted by other "800 Series" Meters to change the center's capabilities to your needs.

MT1800 COMPONENTS

- MT831 Ignition Analyzer (page 273).
- MT826 Multimeter (page 273).
- MT806A Ohmmeter (see below).

CABINETRY

- **KR481A Roll Stand.** Easy rolling mobility with four heavy-duty casters. Has three trays for small parts and tools storage. 34 1/4" high, 15" deep.
- **KRA447 Meter Tray.** Securely holds any three "800 Series" Meters. Features grooved support and metal clamps to prevent meters from dislodging. 16" wide, 8 5/8" high, 8 1/8" deep.



A MT821 TACHOMETER DUTY CYCLE METER

For 1980 GM, Ford and AMC cars with computer controlled fuel systems. Replaces regular tach-dwell meter when testing emission control systems utilizing an Electronic Control Unit. One rotary switch, an inductive clip, a yellow spade lead and two color-coded battery leads provide easy test procedures.

SPECIFICATIONS

Tachometer Range: 0-2000 RPM (20 RPM divisions); 0-10,000 RPM (200 RPM divisions).

Duty Cycle Range: 0% (rich) to 100% (lean) (5% divisions).



B MT851 TIMING-ADVANCE METER

For engines with emission controls. Has two rotary controls and four 9' leads, including two color-coded battery leads and an inductive pick-up. Also includes the MT81A Magnetic Pick-up for GM, AMC and Chrysler cars with magnetic pick-up receptacles.

SPECIFICATIONS

Engine Degrees Scales: -10 to +30° (5° divisions); -10 to +90° (10° divisions).

OPTIONAL MAGNETIC PICK-UPS

MT83. For Ford engines (except 2.3 litre, 4-cyl.) with pick-up receptacle.

MT84. For Ford 2.3 litre, 4-cyl. engines with pick-up receptacle.

MT87. For GM "X" body cars with pick-up receptacle.



C MT806A OHMMETER

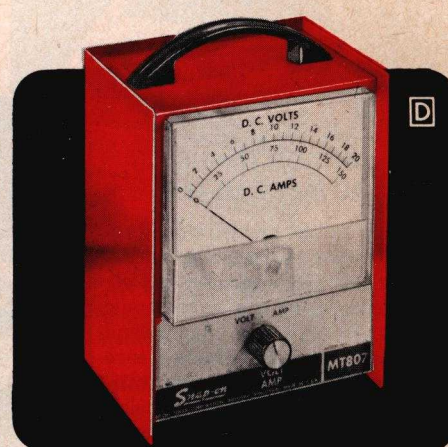
This compact Ohmmeter checks component and circuit resistance and continuity. The unit includes one heavy duty size "D" battery and one 9 volt battery. The MT806A has a hyperbolic OHM scale, a zero set knob, a range selector knob and a pair of 66" test leads.

TESTS WHICH CAN BE PERFORMED

- Dead Engine
- Electronic Ignition Circuit
- Continuity
- Spark Plug Wire Resistance
- Standard Ignition Circuit

SPECIFICATIONS

Ohmmeter Range: 0-infinity, x1, x100 x1000.



D MT807A VOLT-AMP METER

Designed to take accurate voltage and current readings from any electrical circuit, except starter current draw. Features two-color scale and one-knob control.

TESTS WHICH CAN BE PERFORMED

- Regulator
- Alternator
- Generator
- DC Voltage
- Resistance
- Diodes
- Ballast Resistor

SPECIFICATIONS

Ammeter Range: 0-100 amps (0-10 amps in 1 amp divisions; 0-100 amps in 5 amp div.).

Voltmeter Range: 0-20 Volts (0.2 V. div.).

OPTIONAL ACCESSORY

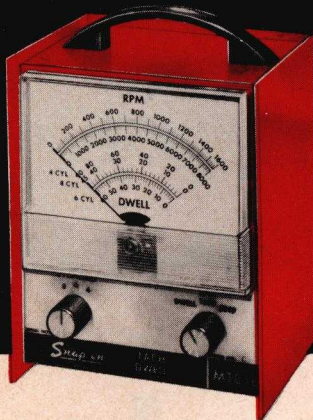
MT358C Battery Post Adaptor (page 269).

Case Dimensions for Above Meters: 5 3/8" wide, 6 3/4" high and 4 3/8" deep.

COMPACT METERS

Meters

A



A MT816C TACH-DWELL METER

Check dwell on 4, 6, or 8-cylinder autos. Two rotary knobs. Operates on 12 volt negative ground systems only. Three color-coded 66" test leads.

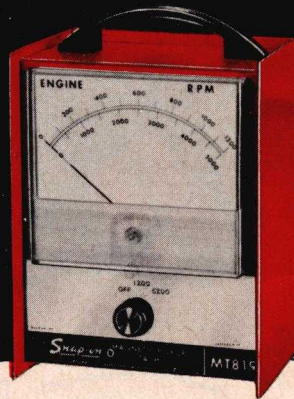
TESTS WHICH CAN BE PERFORMED

- RPM Checks
- Cylinder Balance
- Dwell

SPECIFICATIONS

RPM Range: 0-1600 RPM (20 RPM divisions); 0-8000 RPM (100 RPM divisions).
Dwell Range: 8-cyl., 0-45° (2° divisions); 6-cyl., 0-60° (2° divisions); 4-cyl. 0-90° (4° divisions).

B



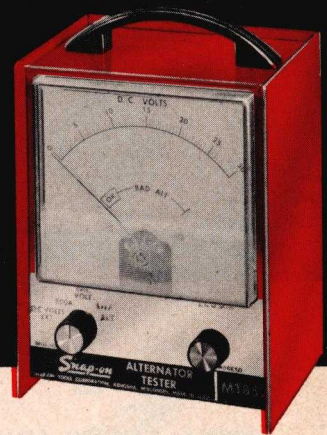
B MT819 GM AUTOMOTIVE DIESEL TACH

Designed for GM automotive diesels with provisions for a magnetic pick-up. Probe is inserted into the magnetic timing receptacle and transmits impulses from the turning damper pulley to the meter for accurate RPM checks. Includes three color-coded test leads.

SPECIFICATIONS

RPM Range: 0-1000 RPM (20 RPM divisions); 0-5000 RPM (100 RPM divisions).

C



C MT852 ALTERNATOR TESTER

Two rotary knobs. Includes two color-coded battery leads, a voltage lead and an inductive ammeter lead. The MT852 is a smaller version of the MT552B AVR Tester (p. 268) less the carbon pile load.

TESTS WHICH CAN BE PERFORMED

- Alternator
- Regulator
- Resistance
- Generator
- Amperage
- DC Voltage
- Diodes and Ballast Resistors

SPECIFICATIONS

Voltmeter Scale: 0-30 VDC (.5 volt divisions).
Ammeter Scale: 0-500 Amps (25 Amp divisions); -10 to +100 Amps (5 Amp divisions).

D



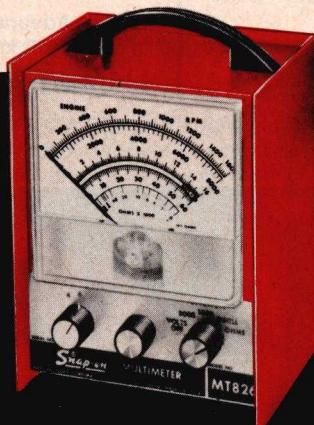
D MT817 SECONDARY TACH-DWELL METER

Check speed of any engine that has a spark plug...check dwell on all 4-, 6- or 8-cyl. engines (4-cycle). Includes one rotary control knob, 2 color-coded battery clips, a yellow test lead and an inductive pick-up.

SPECIFICATIONS

Tach Scales: 0-2000 RPM (20 RPM divisions); 0-10,000 RPM (200 RPM divisions).
Dwell Scales: 4-cyl., 0-90° (4° divisions); 6-cyl., 0-60° (2° divisions); 8-cyl., 0-45° (2° divisions).

E



E MT826 MULTIMETER

Check primary tach, dwell, voltage and resistance with only 3 knobs and 2 test leads. Internal power supply has two 9-volt batteries. Internal battery test function. For 4-, 6- or 8-cylinder engines.

TESTS WHICH CAN BE PERFORMED

- Tach Checks
- Dwell Checks
- Dead Engine
- Diode Efficiency
- Standard Ignition Circuit
- DC Voltage
- Electronic Ignition Circuit
- Continuity
- Cranking Circuit
- Plug Wire Resistance

SPECIFICATIONS

Tach Scales: 0-1600 RPM (20 RPM div.). 0-8000 RPM (200 RPM divisions).
Dwell Scale: 0-60° (1° divisions).
Voltage Scale: 0-16 V. (.2 V. divisions).
Ohms Scale: 0-infinity (10,000 ohm center scale, inverse logarithmic).

F



F MT831 IGNITION ANALYZER

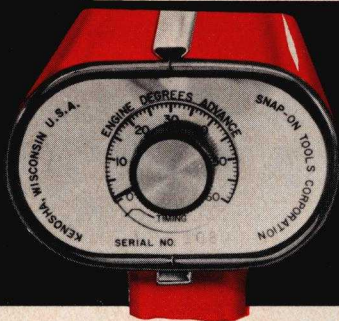
One knob selects kilovolt or DC voltage tests. Cables include 5 1/2' color-coded battery leads and a capacitive pick-up. Makes test on dead or running engines.

TESTS WHICH CAN BE PERFORMED

- Spark Plug Wires
- Spark Plug Firing
- Coil Output
- Secondary Ignition Voltage
- Primary Ignition Voltage

SPECIFICATIONS

Primary Scale: 0-20 Volts DC (1 Volt div.).
Secondary Scale: 0-50 KV (1 KV divisions).



MT241 TIMING-ADVANCE LIGHT FEATURES

- Built-in advance indication circuit maintains strict accuracy over normal temperature and RPM ranges.
- No meter used or required...exclusive circuitry automatically compensates for RPM variations.
- Indicator knob retains accuracy over all speed ranges.
- Friction-type knob helps prevent accidental movement.
- Color-coded alligator-type battery clips hook up directly to the vehicle's battery.
- Inductive clip senses spark plug firing right through #1 spark plug wire.
- Solid-state circuitry provides long lasting reliability.
- Xenon flash tube activates brightly at all RPM ranges...won't double flash or quit flashing.
- High impact, red plastic case is highly resistant to gas, grease and oil.

MT241 Timing-Advance Light. Designed to check the timing of engines with graduations of degrees before and/or after top dead center. Also checks mechanical and vacuum advance. A rear adjustment knob allows adjusting the flash from 0 to 60 engine degrees from the time of the spark plug firing. At any point on the scale up to the maximum of "60," the flash will be delayed by the respective number of engine degrees. Included is a set of leads that consists of two color-coded alligator-type battery clips and an inductive pick-up that senses current right through the spark plug wire without puncturing it.

TESTS PERFORMED BY MT241

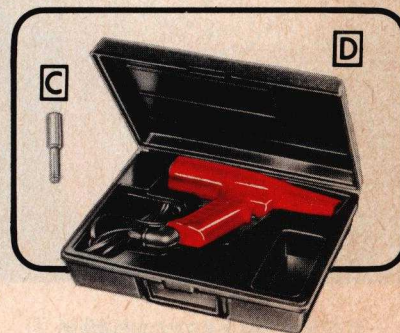
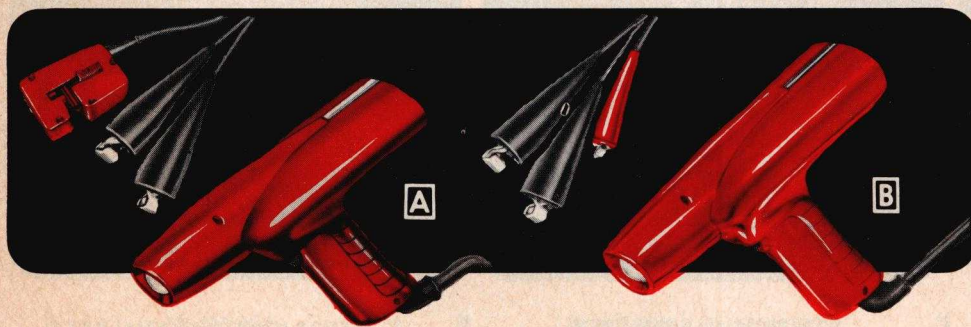
- Initial Timing
- Distributor Mechanical Advance
- Distributor Vacuum Advance

MT241 SPECIFICATIONS

Power Supply: 12 volt.

Engine Advance: 0 to 60° maximum for each separate test because of delay built into unit.

RPM Range: 4,000 RPM maximum for accurate advance indication.



A MT212 Inductive Pick-up Timing Light. Designed for 12 volt systems, this unit operates well at all engine speeds. Similar in appearance to the MT241 above, it includes all the same fine features, except it does not include the "Engine Degrees Advance" circuitry and control knob.

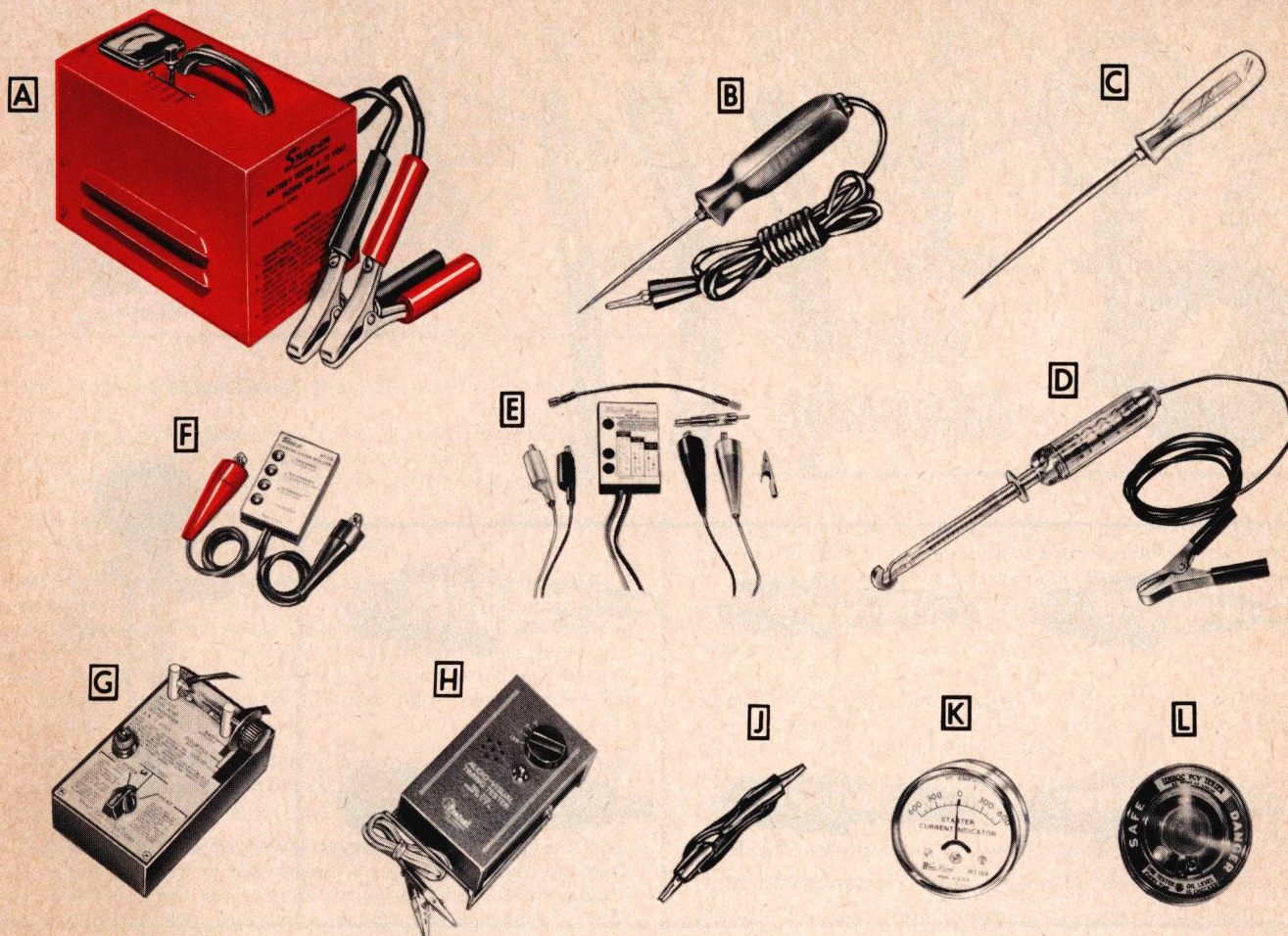
B MT215 Power Timing Light. Similar in appearance to MT212, but has different circuitry and doesn't have inductive clip. Instead, it has two alligator-type battery clips and one spark plug clip.

OPTIONAL ADAPTOR JACK

C MT16 Timing Light Adaptor Jack. For cars with completely shielded ignition leads. Brass adaptor plugs into distributor cap in #1 spark plug lead opening and lead plugs into it...providing ample area for clipping on timing light.

OPTIONAL PLASTIC BOX

D PB10 Plastic Box. Designed to protect either the MT212, MT215 or MT241 Timing Lights. Lightweight, double-wall black polyethylene won't crack, chip, dent or corrode. Measures 13½" x 10" x 3½" high.



CAUTION: Wear approved eye protection when working on batteries.

A MT340B Battery Tester. Checks voltage, condition and capacity of 6 and 12 volt batteries. Also checks regulator condition. Switch has overload feature. 43" long leads.

B CT4C Circuit Tester. 2-18V DC capacity, handle has high dielectric strength. Makes tests with engine off. 6' lead protected by strain relief.

CT24A Circuit Tester. Similar to CT4C above, except with 18-24V DC capacity. Reinforced strain relief.

C SSTP5 Spark Tester. Tapered prod is pushed thru insulation of high tension leads. Intensity of neon flash indicates condition of spark.

D GA336A Circuit Check. Point pierces insulation... a live wire makes handle glow. For 6-12V systems as well as 24V if bulb is changed. Tester 12" test lead 5'.

E MT133A Electronic Ignition Analyzer. Three LED's perform primary test, pick-up test, module test and low battery test on GM, Ford, Chrysler and AMC (except pick-up test on pre-1978 AMC). Also tests primary output of conventional and electronic add-on systems. Four 4' color-coded test leads. 7" test lead for Ford and GM vehicles. Also includes a 7" shunt, plug-in adaptor, and a crocodile clip.

F MT130 Charging System Analyzer. Four LED's check voltage regulators, alternators and "normal" circuits (and diode trio on GM alternators). Two 24" color-coded leads.

G MT335 Coil and Condensor Tester. Operates off 6, 12 or 24 volt systems. Tests condensers, magnetos and coils. Coil efficiency checked by calibrated spark gap. Neon light warns of "hot" electrodes. 6 amp fuse. 3 1/2' leads (insulated for 20,000 volts) have boot covered clips. Case is 6 1/4" x 3 3/4" x 2".

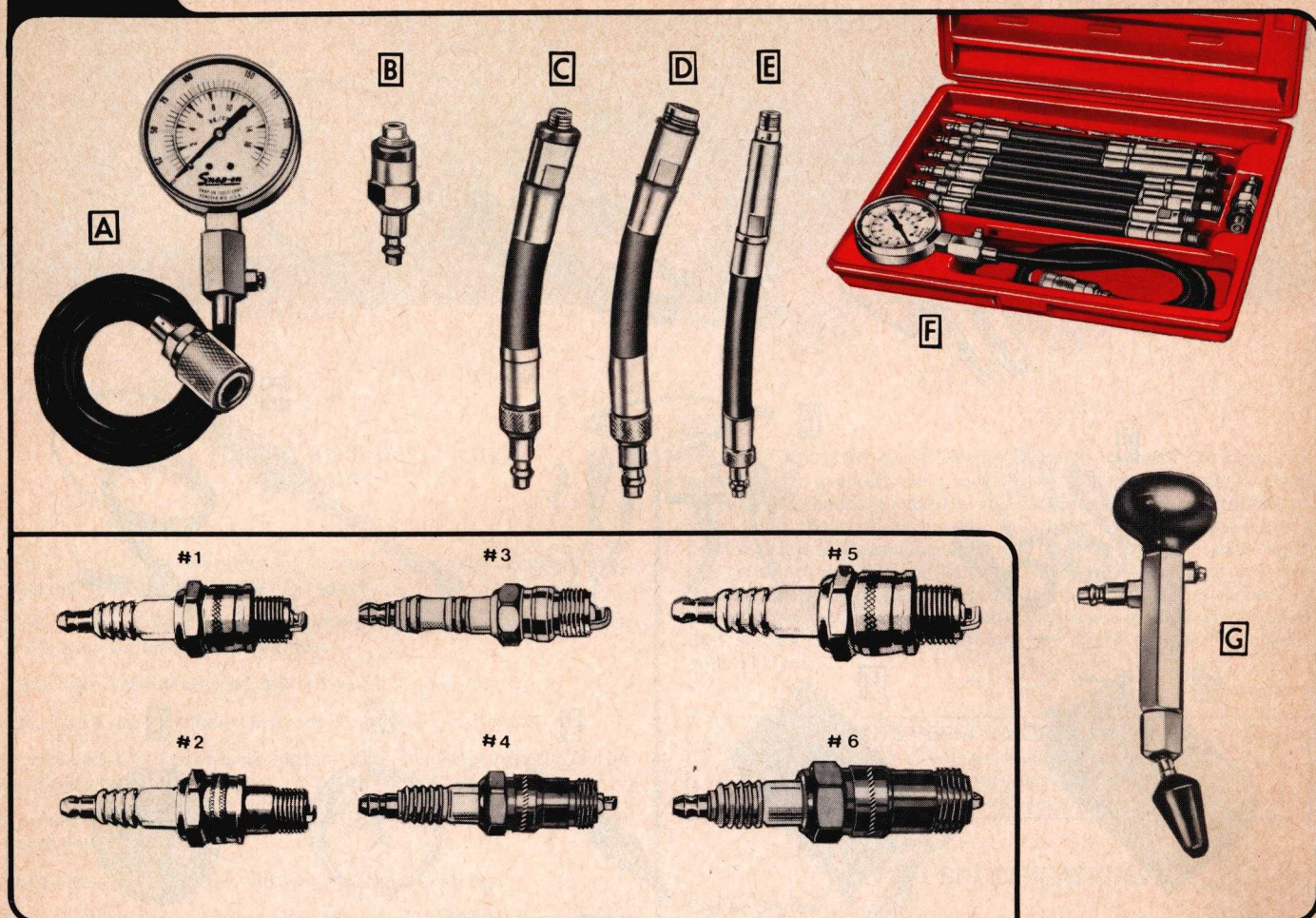
H CM273 Audio-Visual Timing Tester. Signals by light, buzzer or both when points open. Designed for 2-cycle engines. Also use as continuity tester.

I MT301A Test Lead Kit. Contains 12", 18", 24" and 10' jumper leads. Use as extension leads or for shorting out components when testing ignition. 24" jumper only is shown.

K MT109 Inductive Ammeter. Just lay cable guide slot on output wire and measure amperage of 12V systems from 0-600 amps DC (in 50 amp increments). Direct connection isn't necessary.

MT110 Inductive Ammeter (not shown). Similar to MT109 above, but checks output of generators and alternators while under load. Range is 0-100 amps (in 5 amp increments).

L GA302A PCV Tester. Checks PCV or smog valve. With engine idling, put tester over oil fill hole. Ball moves instantly to indicate servicing.



A MT26G Compression Gauge. This 25" flexible hose-type compression gauge is needed with the adaptors listed below to service late model cars where there is a lack of clearance. 24" hose is fitted with a quick coupler. Dial registers from 0-250 psi in 5 psi divisions (0 to 1700 kPa in 20 kPa divisions). Pushbutton releases air after test. Gauge includes MT26-10B 14 mm x 1.25 Universal Adaptor with 8" hose.

COMPRESSION GAUGE ADAPTORS

B MT26-6B 14 mm Short Adaptor. For flat seat spark plugs in illustration #1. 2 $\frac{7}{16}$ " long.

C MT26-10B 14 mm Hose and Adaptor. For flat seat spark plugs in illustration #1. 10 $\frac{15}{16}$ " long.

D MT26-12C 14 mm Hose and Adaptor. For flat seat spark plugs in illustration #2. 10 $\frac{15}{16}$ " long.

E MT26-16C 14 mm Hose and Adaptor. For tapered seat spark plugs in illustration #3. 10 $\frac{3}{4}$ " long.

F MT26-19 14 mm Hose and Adaptor. (Long reach.) For tapered seat spark plugs in illustration #4. 10 $\frac{3}{4}$ " long.

G MT26-11B 18 mm Hose and Adaptor. For tapered or flat seat spark plugs in illustration #5. 10 $\frac{3}{16}$ " long.

H MT26-20 18 mm Hose and Adaptor. (Long reach.) For tapered seat spark plugs in illustration #6. 10 $\frac{1}{2}$ " long.

I MT308JB Compression Gauge Set. Includes items A thru E and ten MT24DA1 Replacement Valve Cores, in PB18 Plastic Box (13 $\frac{1}{2}$ " x 10" x 2 $\frac{1}{4}$ ").

OPTIONAL ADAPTORS FOR MT26G

Ideal to service motorcycle engines. One end threaded to screw into spark plug hole. Other end slips into quick coupler on MT26G. Similar to **G** pictured above.

MT26-17 Adaptor. 10 mm threaded fitting. 10 $\frac{1}{2}$ " long.

MT26-18 Adaptor. 12 mm threaded fitting. 10 $\frac{3}{4}$ " long.

CYLINDER PRESSURE TEST ADAPTORS

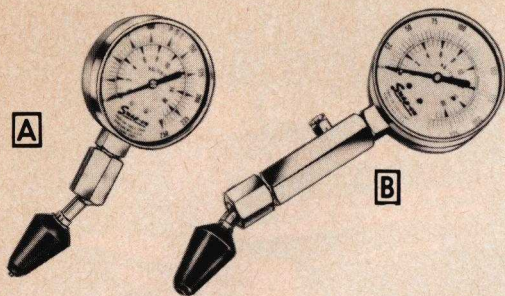
Hold valve in place while spring is replaced or to check for leaky valves or gaskets, bad rings or cracked blocks. Screw adaptor into spark plug hole, attach air hose and inject air pressure into cylinder to keep valve seated. Use with MT324 Cylinder Leakage Tester on page 277. Not designed for use with MT26G Compression Gauge.

C MT26-13B 14 mm Cylinder Pressure Adaptor. For flat seat spark plugs in illustration #1. 10 $\frac{15}{16}$ " long.

MT26-15B 14 mm Cylinder Pressure Adaptor. For flat seat spark plugs in illustration #2. 10 $\frac{15}{16}$ " long.

D MT26-14B 18 mm Cylinder Pressure Adaptor. For tapered or flat seat spark plugs in illustration #5. 10 $\frac{15}{16}$ " long.

G MT26-9 Universal Cone-Type Adaptor. Used with MT26G when taking readings on low compression engines. 2-piece hexagon housing has swivel joint and neoprene cone for use in any spark plug hole.



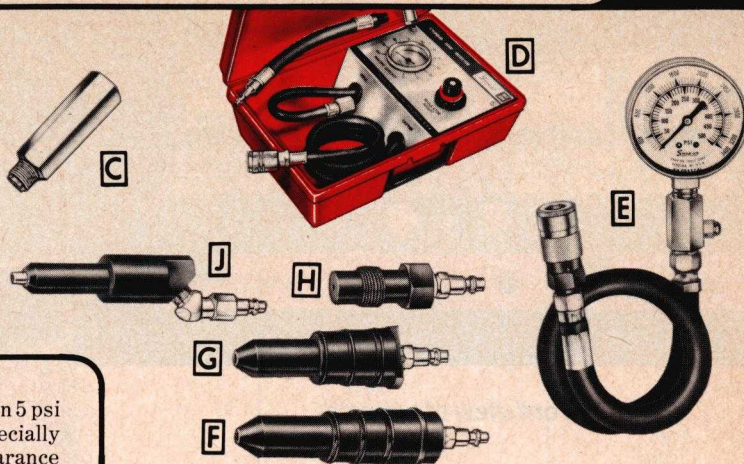
A MT27A Compression Gauge. Dial reads from 0 to 250 psi in 5 psi increments (0 to 1700 kPa in 20 kPa increments) and is specially designed for Type 1 Volkswagens. Offset stem overcomes clearance problems. Check valve is located at bottom of unit to avoid interference with cooling shroud sheet metal. Replaceable dial cover.

MT27R Service Kit. Included with above gauge. Contains cone tip, valve and sealing ring in drawstring bag.

B MT24J Compression Gauge. Dial reads from 0-250 psi in 5 psi increments (0-1700 kPa in 20 kPa increments). Holds highest compression reading until release valve button is pressed, even when gauge is removed from spark plug hole. Replaceable dial cover. Spare valve included. Neoprene cone tip is unaffected by grease or gas. Swivels to reach and fit all spark plug holes. Service Kit is included.

MT24DR Service Kit. Included with above gauge. Contains cone tip, valve and sealing ring in drawstring bag. *This kit is for MT24J above and previous models.*

C MT24D8 Compression Gauge Adaptor. Fits on MT24J and older model gauges so they can be used on V-8 engines with deep set spark plug openings. Cone assembly of gauge is removed and adaptor threads onto shaft end. Replacing cone assembly leaves gauge ready for use. Installed, release valve is 6 3/4" from cone tip.



D MT324 Cylinder Leakage Tester. Designed to test leakage on 2 or 4 cycle engines, the tester utilizes an air supply of 70 psi (minimum) to 200 psi (maximum) in determining the percentage of cylinder leakage. Included is a 12" neoprene hose having a male quick coupler on one end and both 14 mm and 18 mm threads on the other which fit most cars. **Also includes one 14 mm to 14 mm extension adaptor.**

E MT33A Compression Gauge. For diesel engines. Dial reads from 0-800 psi and 0-5500 kPa. Gauge includes 18" hose with release valve. Use with adaptors listed below.

F M3540 Adaptor. For Cummins NH and 903 diesel engines.

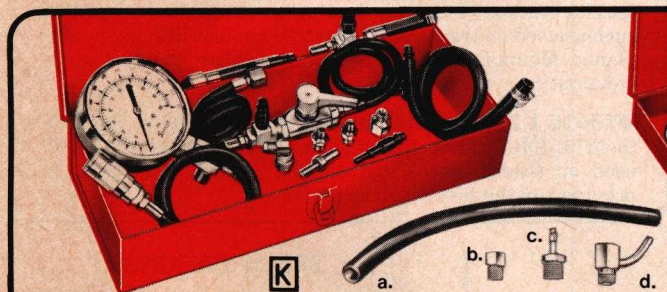
G M3541 Adaptor. For all V555 Cummins diesel engines.

H M3542 Adaptor. For VW diesel engines.

J M3543 Adaptor. For all Detroit (GM) 53, 71 and 92 diesels.

M3545 Adaptor (not shown). For Oldsmobile and Cadillac diesel engines.

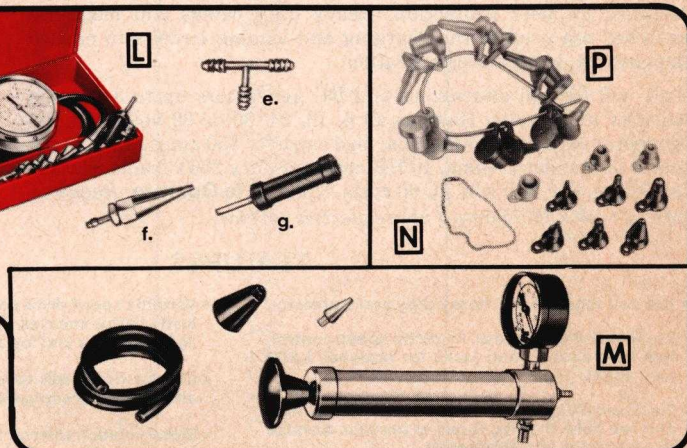
VACUUM GAUGES/ACCESSORIES



K MT321A Automotive Fuel Injection Pressure Gauge Set. Dial reads from 0-100 psi in 2 psi increments (0-700 kPa in 10 kPa increments). Checks air flow and manifold pressure control type fuel injection systems on some imported cars and 1976-current Cadillacs, plus the continuous injection systems on many imports. Includes 5 quick coupler-adaptors, 2 pressure adaptors, a reducer and a 90° swivel adaptor. Set comes in KRA104 Metal Box.

L MT311EB Vacuum and Fuel Pump Gauge Set. Contains MT14F Vacuum and Fuel Pump Gauge. Vacuum gauge shows up to 28" of mercury in 1" and 5" increments (0 to 70 kPa in 2 kPa increments) and fuel pump pressure shows up to 10 psi in 1/2 psi and 1 psi increments (0 to 90 kPa in 2 kPa increments). Also includes 4' hose and 13 adaptors listed below all packaged in KRA128 Metal Box (8" x 6 1/2" x 1 5/8").

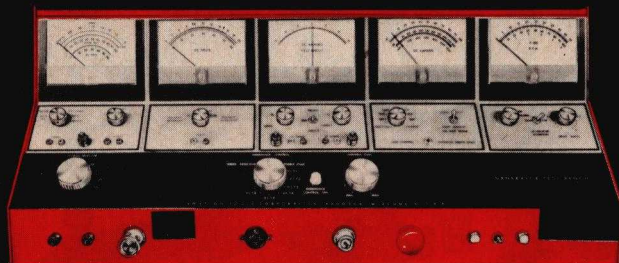
- | | |
|---------------------------------------|-----------------------------------|
| a. MT425-12 6" Adaptor Hose | d. MT14-15 5/8"-18 Thread Adaptor |
| b. MT14-7 1/8" Pipe, 7/16"-24 Adaptor | MT14-8 1/2"-20 Thread Adaptor |
| c. MT12-12 1/2"-20 Thread Adaptor | MT14-9 7/16"-24 Thread Adaptor |
| MT12-10 1/8" Pipe Thread Adaptor | e. MT14-16 "T" Adaptor |
| MT14-6 1/4"-18 Thread Adaptor | f. MT14-11 Hose Coupling |
| MT14-13 7/16"-24 Thread Adaptor | g. MT14-12A Tube Connector |
| MT14-14 5/8"-18 Thread Adaptor | |



M SVT261 Vacuum Tester. Checks any vacuum operated device on any vehicle... door locks, booster pumps, vacuum controls on heaters and air conditioners. Also helps prove tune-up jobs before road testing. Gauge reads 0-30" Hg in 1" increments (0-760 mm Hg in 10 mm increments). Includes a metal cone, rubber cone and rubber tubing.

N YA312 Vacuum Hose and Fuel Line Stopper Set. Includes 3 tapered rubber caps to close all common size metal tubes from 1/8" to 1/2" diameter, plus 6 rubber plugs to close all 1/8", 3/16", 1/4", 5/16" and 1/2" hoses. Come attached to bead chain.

P YA829 Vacuum Line Plugs. Includes 6 pairs of color-coded rubber plugs and caps on a metal ring.



Front view of console

CAUTION: Input wiring must comply with national and local electrical codes. This equipment incorporates parts which tend to produce arcs or sparks, so keep in enclosure provided for this purpose or at least 18" above floor. Also, storage batteries should be placed in a well ventilated area, test bench should always be started or stopped at lowest speed, and always place beltguard in position before use.

This Test Bench is available on special order only. Specify voltage when ordering: MT1510B208V, MT1510B230V, MT1510B380V or MT1510B460V.

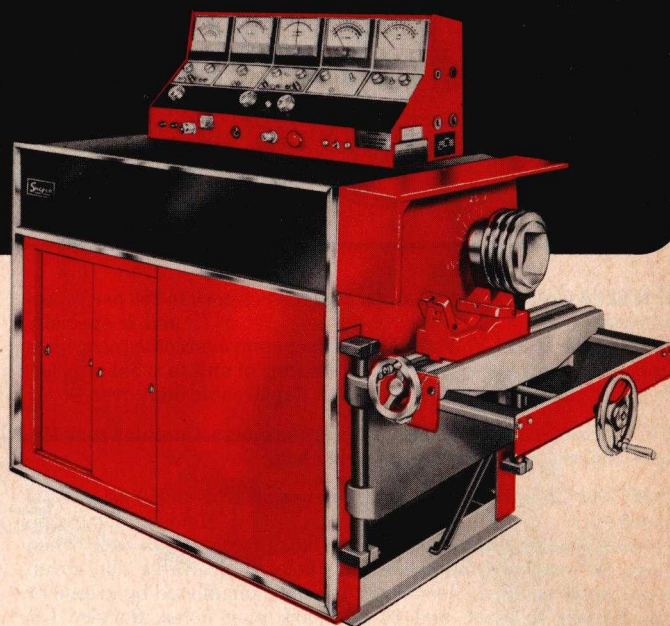
MT1510B Test Bench. For testing charging system components, separately or interconnected while off the vehicle, including generators, alternators, regulators and component parts of these units. It can also test heavy duty oil-cooled alternators when used with the MT1508A Oil Cooler (optional).

The console includes all controls, two ammeters, one voltmeter, one ohmmeter and one tachometer (see specifications). Motor rotation selector locks to avoid unintentional reversing of the motor during operation. The unit is equipped with a heavy duty, fully adjustable vise-type mounting carriage for the units being tested...for direct or belt driven generators and alternators. All polarity-sensitive leads are color-coded for correct hook-up. A removable belt guard is included for user protection. Heavy duty cables and magnetic switches are used in the charging and loading circuits to ensure dependable, trouble-free operation.

Unit will test all alternators and DC generators up to 340 amps capacity at 14 volts. Handles all 6, 12, 24, 30 or 32 volt systems. Ammeter capacity is 500 amps; load capacity 350 amps. Main drive motor is Standard Nema, 10 HP, constant duty 256T frame, class B insulation, 220/440 volt AC 60 cycle, 3 phase. **To Operate:** Requires 220/440 volts 30/15 amp 3 phase electric service.

FEATURES

- Tests all regulators...heavy duty and transistor.
- Equipped with stepless, fingertip speed control, two field circuits and jacks for optional 1,200 amp shunt.
- Field current control has separate circuits for high and low field circuits, fused to prevent damage to generators and alternators.
- Green service switch light indicates when electric power is on.
- Heavy Duty Load Bank Controls feature red indicator light when in use, allow infinite adjustment by a variable load of 50 amps and preset increments of 50 amps each up to 350 amps.
- Amber low and high limit lights used with speed control switch to aid in staying within required speed range.
- Large 6" meters feature D'Arsonval jeweled movements and are accurate within 2% of full range.
- Isolation transformer powers the accessories.
- Speed control motor is continuous duty, 1/3 H.P., 110 volt, 60Hz., gear reduction type.
- Variable speed drive contains heavy duty spring-loaded drive sheaves. Positive stops and warning lights for high and low speed limits.
- Output drive will turn belt-driven generators and alternators to speeds over 8,000 RPM.
- Motor rotation selector is heavy duty interlocking-type. Safety motor switch prevents reversing the motor while running.
- Ohmmeter permits testing diodes without removing them from stator windings.
- Standard accessories include pulley drive belts, regulator heater, test jumpers and locking connectors, voltage regulator mounting plate, universal chain, clamp, pivot mount for alternators, 300 amp charging circuit leads, direct drive adaptor set for gear driven generators and detailed instructions.
- Welded steel construction. Instrument console vibration-proofed to eliminate pointer deflection. Base cabinet features adequate storage for leads, accessories, manuals, etc. Rubber covered work area has provisions for the voltage regulator mounting stand (included).



OPTIONAL ACCESSORIES

MT1508A Oil Cooler. Assures proper cooling during testing for oil-cooled generators used on many large buses. These generators may be tested at full output and normal operating temperatures. Power for the 110 volt pump motor is available by plugging into the 110 volt accessory outlet on the test bench console. Hoses and necessary adaptors are included.

MT1501B Magneto Adaptor. Allows testing of magneto-type ignition systems. Tests most base or flange mounted magnetos, such as used on tractors or industrial engines in small power plants. Mounts on vise block. Drive pulley has 10:1 step-down ratio.

MT541C 1,200 Ampere Shunt. (See page 269) For use with the MT1510B Test Bench for readings taken in series on starters used on trucks, buses and diesels. A 1,200 amp scale is provided on the test bench ammeter.

SPECIFICATIONS

Ohmmeter and AC Voltmeter Scales: Ohmmeter Range, 0-15 ohms (1 ohm divisions); 15-50 ohms (5 ohm divisions); 50-100 ohms (10 ohm divisions); remaining portions in 100, 150, 200, 300, 400, 500 and infinity ohms. Voltmeter Range: AC, 0-60 volts (1 volt divisions).

DC Voltmeter Scale: DC, 0-6 volts (0.2 volt divisions); 6-16 volts (0.1 volt divisions); 16-20 volts (0.2 volt divisions); 0-60 volts (0.5 volt divisions). Polarity Reversing switch.

Field Current Scale: 0-15 amps (0.2 amp divisions). Two rheostat controls and switch for selecting LO OHMS or HI OHMS field.

Ammeter Scales: -10 to +100 amps (1 amp divisions); -50 to +500 amps (5 amp divisions); -100 to +1200 amp with optional MT541C External Shunt (10 amp divisions). Amp selector switch and load current switch.

Tachometer Scales: 0-50 x 100 RPM (0.5 RPM divisions); 0-100 x 100 RPM (1 RPM divisions); 0-5 x 100 RPM (0.05 RPM divisions). Generator rotation switches, drive ratio control and RPM selector.

CONVERSION CHART

SHOWING **MILLIMETRE** SIZES, FRACTIONAL and
DECIMAL INCH SIZES and DRILL NUMBER SIZES

M = Millimetres, **DE** = Decimal Equivalents, **F** = Fractional, **DN** = Drill Number

"M"	"DE"	"F"	"DN"	"M"	"DE"	"F"	"DN"	"M"	"DE"	"F"	"DN"	"M"	"DE"	"F"	"DN"	"M"	"DE"	"F"
.1	.0039			1.75	.0689			...	.1570		22	6.8	.2677			10.72	.4219	27/64
.15	.0059			...	.0700		50	4.0	.1575			6.9	.2716			11.0	.4330	
.2	.0079			1.8	.0709			...	.1590		21	...	.2720	I		11.11	.4375	7/16
.25	.0098			1.85	.0728			...	.1610		20	7.0	.2756			11.5	.4528	
.3	.0118			...	.0730		49	4.1	.1614			...	.2770	J		11.51	.4531	29/64
...	.0135		80	1.9	.0748			4.2	.1654			7.1	.2795			11.91	.4687	15/32
.35	.0138			...	.0760		48	...	.1660		19	...	.2811	K		12.0	.4724	
...	.0145		79	1.95	.0767			4.25	.1673			7.14	.2812	9/32	...	12.30	.4843	31/64
.39	.0156	1/64	...	1.98	.0781	5/64		4.3	.1693			7.2	.2835			12.5	.4921	
.4	.0157			...	.0785		47	...	.1695		18	7.25	.2854			12.7	.5000	1/2
...	.0160		78	2.0	.0787			4.37	.1719	11/64	...	7.3	.2874			13.0	.5118	
.45	.0177			2.05	.0807			...	.1730		17	...	.2900	L		13.10	.5156	33/64
...	.0180		77	...	.0810		46	4.4	.1732			7.4	.2913			13.49	.5312	17/32
.5	.0197			...	.0820		45	...	.1770		16	...	.2950	M		13.5	.5315	
...	.0200		76	2.1	.0827			4.5	.1771			7.5	.2953			13.89	.5469	35/64
...	.0210		75	2.15	.0846			...	.1800		15	7.54	.2968	19/64	...	14.0	.5512	
.55	.0217			...	.0860		44	4.6	.1811			7.6	.2992			14.29	.5625	9/16
...	.0225		74	2.2	.0866			...	.1820		14	...	.3020	N		14.5	.5709	
.6	.0236			2.25	.0885			4.7	.1850		13	7.7	.3031			14.68	.5781	37/64
...	.0240		73	...	.0890		43	4.75	.1870			7.75	.3051			15.0	.5906	
...	.0250		72	2.3	.0905			4.76	.1875	3/16	...	7.8	.3071			15.08	.5937	19/32
.65	.0256			2.35	.0925			4.8	.1890		12	7.9	.3110			15.48	.6094	39/64
...	.0260		71	...	.0935		42	...	.1910		11	7.94	.3125	5/16	...	15.5	.6102	
...	.0280		70	2.38	.0937	3/32	...	4.9	.1929			8.0	.3150			15.88	.6250	5/8
.7	.0276			2.4	.0945			...	.1935		10	...	.3160	O		16.0	.6299	
...	.0292		69	...	.0960		41	...	.1960		9	8.1	.3189			16.27	.6406	41/64
.75	.0295			2.45	.0964			5.0	.1968			8.2	.3228			16.5	.6496	
...	.0310		68	...	.0980		40	...	.1990		8	...	.3230	P		16.67	.6562	21/32
.79	.0312	1/32	...	2.5	.0984			5.1	.2008			8.25	.3248			17.0	.6693	
.8	.0315			...	.0995		39	...	.2010		7	8.3	.3268			17.06	.6719	43/64
...	.0320		67	...	.1015		38	5.16	.2031	13/64	...	8.33	.3281	21/64	...	17.46	.6875	11/16
...	.0330		66	2.6	.1024			...	.2040		6	8.4	.3307			17.5	.6890	
.85	.0335			...	.1040		37	5.2	.2047			...	.3320	Q		17.86	.7031	45/64
...	.0350		65	2.7	.1063			...	.2055		5	8.5	.3346			18.0	.7087	
.9	.0354			...	.1065		36	5.25	.2067			8.6	.3386			18.26	.7187	23/32
...	.0360		64	2.75	.1082			5.3	.2086			...	.3390	R		18.5	.7283	
...	.0370		63	2.78	.1094	7/64	...	...	.2090		4	8.7	.3425			18.65	.7344	47/64
.95	.0374			...	.1100		35	5.4	.2126			8.73	.3437	11/32	...	19.0	.7480	
...	.0380		62	2.8	.1102			...	.2130		3	8.75	.3445			19.05	.7500	3/4
...	.0390		61	...	.1110		34	5.5	.2165			8.8	.3465			19.45	.7656	49/64
1.0	.0394			...	.1130		33	5.56	.2187	7/32	...	...	.3480	S		19.5	.7677	
...	.0400		60	2.9	.1141			5.6	.2205			8.9	.3504			19.84	.7812	25/32
...	.0410		59	...	.1160		32	...	.2210		2	9.0	.3543			20.0	.7874	
1.05	.0413			3.0	.1181			5.7	.2244			...	.3580	T		20.24	.7969	51/64
...	.0420		58	...	.1200		31	5.75	.2263			9.1	.3583			20.5	.8071	
...	.0430		57	3.1	.1220			...	.2280		1	9.13	.3594	23/64	...	20.64	.8125	13/16
1.1	.0433			3.18	.1250	1/8	...	5.8	.2283			9.2	.3622			21.0	.8268	
1.15	.0452			3.2	.1260			5.9	.2323			9.25	.3641			21.03	.8281	53/64
...	.0465		56	3.25	.1279			...	.2340		A	9.3	.3661			21.43	.8437	27/32
1.19	.0469	3/64	...	...	.1285		30	5.95	.2344	15/64	...	...	.3680	U		21.5	.8465	
1.2	.0472			3.3	.1299			6.0	.2362			9.4	.3701			21.83	.8594	55/64
1.25	.0492			3.4	.1338			...	.2380		B	9.5	.3740			22.0	.8661	
1.3	.0512			...	.1360		29	6.1	.2401			9.53	.3750	3/8	...	22.23	.8750	7/8
...	.0520		55	3.5	.1378			...	.2420		C	...	.3770			22.5	.8858	
1.35	.0531			...	.1405		28	6.2	.2441			9.6	.3780	V		22.62	.8906	57/64
...	.0550		54	3.57	.1406	9/64	...	6.25	.2460		D	9.7	.3819			23.0	.9055	
1.4	.0551			3.6	.1417			6.3	.2480			9.75	.3838			23.02	.9062	29/32
1.45	.0570			...	.1440		27	6.35	.2500	1/4	E	9.8	.3858			23.42	.9219	59/64
1.5	.0591			3.7	.1457			6.4	.2520			...	.3860			23.5	.9252	
...	.0595		53	...	.1470		26	6.5	.2559			9.9	.3898			23.81	.9375	15/16
1.55	.0610			3.75	.1476			...	.2570		F	9.92	.3906	25/64	...	24.0	.9449	
1.59	.0625	1/16	...	...	.1495		25	6.6	.2598			10.0	.3937			24.21	.9531	61/64
1.6	.0629			3.8	.1496			...	.2610		G	...	.3970			24.5	.9646	
...	.0635		52	...	.1520		24	6.7	.2638			...	.4040	Y		24.61	.9687	31/32
1.65	.0649			3.9	.1535			6.75	.2657	17/64	...	10.32	.4062	13/32	...	25.0	.9843	
1.7	.0669			...	.1540		23	6.75	.2657			...	.4130	Z		25.03	.9844	63/64
...	.0670		51	3.97	.1562	5/32	...	...	.2660		H	10.5	.4134			25.4	1.0000	1

MASTER MAINTENANCE SET

(Set illustrated on back cover.)

5351AGSB Master Maintenance Set. Contains 1/4," 3/8," 1/2," 3/4" drive and assorted tools in KRA59C Tool Chest, KTA3A Tote Tray and KRA380 Roll Cab.

5351AGS Set. Tools only.

Stock No.	Description	Page No.
8HR	8" Half Round File.....	172
8MA	8" Mill File.....	172
8R	8" Round File.....	172
8T	8" Triangular File.....	172
10R	10" Round File.....	172
10T	10" Triangular File.....	172
12HR	12" Half Round File.....	172
12MA	12" Mill File.....	172
45	5 1/2" Gripping Pliers.....	145
47	7 1/2" Gripping Pliers.....	145
61CP	7 3/4" Duck Bill Pliers.....	149
71CP	Lock Ring Pliers (Straight Tip).....	150
87	7 1/4" Diagonal Cutters.....	148
90AP	9 1/4" Interlocking Joint Pliers.....	149
94CP	4 1/2" Needle Nose Pliers.....	149
96	7" Needle Nose Pliers.....	149
105P	5" Ignition Pliers.....	145
134TMP	1/4" Dr Tool Set.....	42
131A	Brake Spring Pliers.....	235
184CP	4 1/4" Diagonal Cutters.....	148
208CP	7 3/4" Battery Pliers.....	222
211FUY	3/8" Dr Std 12 pt FLEX Skt Set (5/16"-15/16").....	56
211SFSY	3/8" Dr Deep 6 pt Skt Set (1/4"-7/8").....	55
218FSP	3/8" Dr Tool Set.....	50
311SY	1/2" Dr X-Deep 12 pt Skt Set (1/2"-1 1/8").....	68
316SWY	1/2" Dr Std 12 pt Skt Set (3/8"-1 5/8").....	67
325AM	1/2" Dr Tool Set.....	64
414AHD	3/4" Dr Tool Set.....	78
650	6" Pry Bar.....	155
1650	16" Pry Bar.....	155
AW1015AK	Hex Head Wrench Set.....	111
BP8A	8 Oz Ball Peen Hammer.....	154
BP16A	16 Oz Ball Peen Hammer.....	154
BP32A	32 Oz Ball Peen Hammer.....	154
BP48A	48 Oz Ball Peen Hammer.....	154

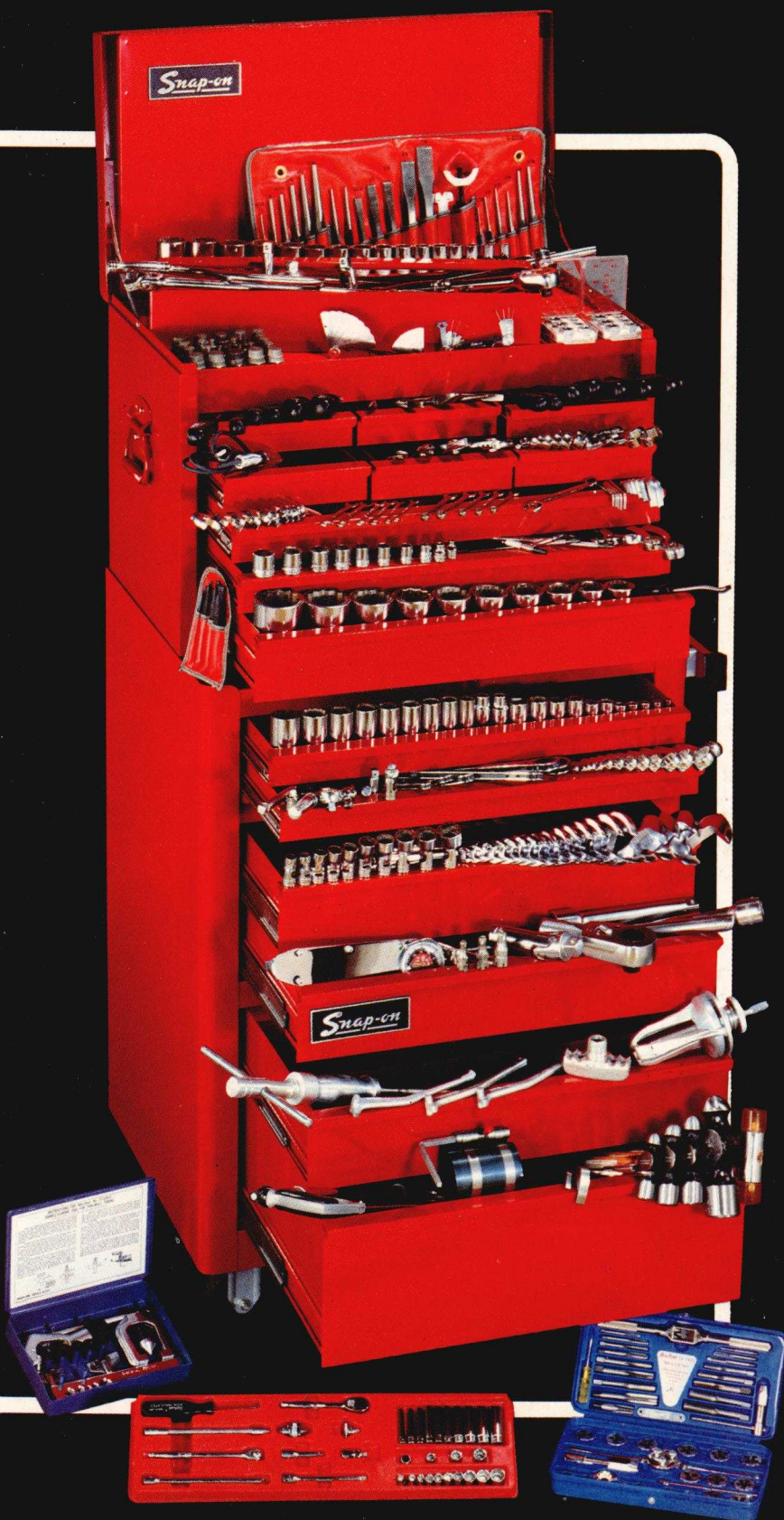
Stock No.	Description	Page No.
BH92B	16 Oz Plastic Tip Hammer.....	154
CG1500	Combination Puller Set.....	192
CP3A	Cotter Pin Puller.....	221
CT4C	Circuit Tester.....	275
CX605	Half Moon Box Wr Set (7/16"-15/16").....	100
DS806	Ignition Wr Set (15/64"-3/8").....	103
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HS12	Hacksaw Frame (12" Blade).....	170
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